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FIVE CASES OF GALL-BLADDER SURGERY.[1]

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Sydney.

Case I.—C.W., aged 60 years. History: The patient had had several attacks of abdominal pain, spread over several years. The last severe attack was in January, 1915. There had never been jaundice. The diagnosis made by a medical practitioner in the country was gall-stone colic.

The patient was seen by me on April 4, 1915. He was well-nourished; there was no jaundice, and the heart and lungs were clear. The only sign was tenderness and resistance over the gall-bladder area. He dreaded a recurrence of the attacks of pain.

Operation.—April 26, 1915. The usual gall-bladder incision through right rectus was made. Extensive adhesions of various ages, some recent, were seen between the gall-bladder and the surrounding parts. The gall-bladder was thick-walled. No calculi were present in the gall-bladder or hepatic, or common ducts. The gall-bladder was drained.

The opening has been somewhat slow in closing; there is still (June 16) an occasional slight leak. The patient is well.

Case II.—M.L., aged 70 years. History: Several severe attacks of abdominal pain had been experienced, the last in April, 1915. No jaundice had occurred. The patient was thin, but wiry; he was weak as the result of the last severe attack. The temperature was normal.

Operation.—May 11, 1915. The usual gall-bladder incision was made; many recent adhesions to the gall-bladder and surrounding parts were present. The gall-bladder was thickened, œdematous, and discoloured, especially towards the fundus, which presented some blackish-blue and cherry-red patches. In fact, the gall-bladder looked as though it was about to become gangrenous *en masse*. There were some gall-stones in the gall-bladder, but none in the common duct or in the hepatic ducts.

The gall-bladder was excised, the cystic vessels and cystic duct being ligatured, and the gall-bladder stripped off the liver. Carbolic acid was applied to the stump of the cystic duct. The peritoneum was stitched over the raw surface, and the abdomen closed. No drainage was employed; two pints of saline solution were left in the peritoneal cavity. The appendix was removed.

About 30 calculi, some large, were found in the gall-bladder. The mucous membrane was deeply ulcerated in patches, especially towards fundus. There was no evidence of malignant disease.

The patient went out of hospital on June 5 in good health.

Case III.—McD., aged 38 years. For years the patient had been troubled by constipation and more or less definite attacks of abdominal colic. Four and a half years previously she had been seen by me, and told that she probably had gall-stones. During the past two years she had been greatly worried by the constipation, which had, however, never approached anything like an obstructive condition. A surgeon in another State had been consulted, and the question of excising a portion of the big gut and short circuiting had been considered. During the past year bismuth meals had been given and radiography done. The latter showed that the hepatic and splenic flexures of the colon were normal in position, but that the transverse colon sagged down, the proximal portion lying beside the ascending colon. The stomach was rather big and S-shaped, but not prolapsed. A diagnosis of adhesions hampering the peristaltic action of the colon was made. There was a history of menorrhagia. The possibility of appendix trouble was considered.

On examining the patient, the only position in which I could find definite tenderness on deep pressure was over the gall-bladder. It did not appear to me that the condition of constipation was anything like severe enough to warrant either an excision or short circuiting of gut.

Operation.—June 11, 1915. A curetting was done prior to the laparotomy. An abdominal incision was made to the right of the middle line. There were no adhesions in connexion with either the colon or the stomach. The mesocolon was long, and permitting of sagging of the transverse colon. The hepatic and splenic flexures were in their normal position, the stomach somewhat big and S-shaped, and the duodenum a little below the normal position. There were extensive adhesions about the gall-bladder, which was distended and contained numerous calculi. The gall-bladder was excised. The stomach and intestines were not interfered with, except for removal of the appendix. The bile ducts were examined and found to be clear.

The gall-bladder was considerably thickened, and contained numerous round gall-stones, none of them larger than a large pea. This probably explained the fact that none of the attacks of colic had been of extreme severity.

Case IV.—A.E.C., aged 42 years. History: An abdominal section had been performed by me thirteen years before for dense pelvic adhesions, the result of double infective salpingitis. During the last four years there had been several attacks of abdominal pain, accompanied by a rise of temperature. Pain was rather diffused, and not absolutely localized over either the gall-bladder or the appendix. The last severe attack was in June, 1914, and was diagnosed by a medical man up country as an acute appendicitis.

On examination early this month (June, 1915), definite tenderness in the appendix region was found. There were also pain and a sense of weight in the right loin, together with some tenderness on deep

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on June 25, 1915.

pressure over the gall-bladder. The patient had been told that the loin condition was due to a "floating kidney," and that this should be fixed. I was unable to find any undue mobility of the right kidney.

I came to the conclusion that the trouble was probably in the appendix, and possibly in the gall-bladder as well.

Operation.—June 16, 1915. An incision was made through the sheath of the rectus muscle, as for appendicitis, and the belly of the muscle was turned inwards. There were a few adhesions about the caecum and appendix. The latter contained two large and hard concretions. Around the area of attachment to the caecum there was a very definitely thickened ring, almost like a sphincter. The appendix was removed.

It was evident that the *fundus uteri* had been suspended or attached to the anterior abdominal wall at the operation done 13 years before, as there was a firm band about three inches long from the top of the fundus of the atrophied uterus to the lower end of the old central scar. This band was excised. A gall-stone was felt impacted in the cystic duct. The gall-bladder was enlarged and tensely distended.

The usual gall-bladder incision was made. There were some adhesions from the gall-bladder to the surrounding parts. The gall-bladder was excised. Both incisions were closed without drainage. The peritoneal cavity was washed out with saline solution.

Two concretions were discovered inside the appendix, one having caused some superficial ulceration. The wall of the caecum around the appendix was much thickened. For this reason the possibility of early tubercular trouble was considered, but on carefully examining before the abdomen was closed, it was decided that this was improbable.

One calculus was firmly impacted in an S-shaped bend of the cystic duct. The gall-bladder itself was tensely distended. Until it was opened, the numerous calculi it contained could not be felt. The block in the cystic duct was obviously complete. The gall-bladder contained only clear mucus, besides the calculi.

Case V.—E.T., aged 67 years. History: The patient had been subject to attacks of biliary colic for many years. Of the last two attacks, one occurred early in 1914, and the other in April, 1915. The patient was jaundiced, and looked very ill; the temperature was irregular, and rigors had occurred. No bile had been passed by the bowel for over two weeks. On June 3 bile suddenly appeared in the motions, and diarrhœa set in. The temperature fell to 99°. The patient was greatly relieved.

Operation.—June 17, 1915. I made the usual rectus incision. Dense and extensive adhesions presented themselves when the abdomen was opened. These adhesions buried the gall-bladder, which was ultimately found. The gall-bladder was contracted, and through its neck the adhesions extended into the common bile duct. Evidently the calculus had ulcerated its way through. The duodenum, common bile duct and head of pancreas had been defined and second part of duodenum mobilized. A gall-stone the size of a pigeon's egg was felt in the common duct. When on the point of incising the common duct, I felt the calculus apparently slip away. What had actually happened was that it had broken into smaller fragments. These I "milked" into the duodenum. Probably the mass had been made up of smaller calculi agglutinated together. The common duct was not incised, and as the gall-bladder contained no calculi, and communicated freely with the common duct, so that drainage was established, the gall-bladder was not removed.

All the ducts, hepatic and common, were examined and found to be free of calculi. The patient's condition was so serious that it was deemed wiser not to prolong the operation by removing the gall-bladder, which was still densely adherent to the liver. The peritoneum was sutured over raw surface.

A noticeable feature was the existence of numerous old and tough adhesions between the upper surface of the liver and the diaphragm. These prevented the pulling down and rotation of the liver, and so rendered the operation considerably more difficult than it would have been, had it been possible to bring the ducts nearer to the surface.

The abdomen was closed, no drain was employed, and saline solution was left inside the peritoneal cavity.

The dressing was changed for the first time on June 24. The incision was well and soundly healed. The temperature was normal. The jaundice had almost entirely disappeared, and the patient was feeling well.

I have placed before you to-night brief notes of these five cases, not because there was anything extraordinary or special about any of them, but because of the interest pertaining to them from the point of view of diagnosis and treatment. They are all recent as far as the operative treatment is concerned. From previous experience, I feel justified in forecasting that there will be no further trouble, except possibly in the first case, where the history of biliary colic was very definite, but on opening the abdomen no calculi were found, either in gall-bladder or ducts. In this case, apparently, there was either only one calculus, which was passed in the final attack of colic, or several calculi had been passed at different times, the last one in the final attack. I think that I might perhaps have done more wisely for the patient had I excised this gall-bladder, instead of simply draining it. And this brings me to a point which I consider important. We agree, I assume, that in practically all cases of biliary calculi there has been an invasion of the bile passages by organisms of the *bacillus coli* type. It has been laid down very strongly that in all these cases, drainage of the bile passages is a *sine qua non*. This has usually been done by draining the gall-bladder. It seems to me, however, that when the bile ducts are obviously patent, especially the opening of the common duct into the duodenum, and when there are no further calculi to be felt in the ducts, it would be a wiser practice to excise the gall-bladder and leave the drainage to take place *per vias naturales*. It may be objected that re-infection of the ducts from the duodenum may take place,

but this applies equally to those cases where the gall-bladder has been drained through the abdominal wall and the fistulous track has closed, with the added disadvantage that there is still the gall-bladder, which has been damaged, and exists, may I say, as a stagnant pool, with only one opening for entrance and exit.

The first time I deliberately excised a gall-bladder was in 1900, although my first gall-bladder operation was carried out in 1886. The patient was a man, aged over 60, who suffered from repeated attacks of biliary colic. In this case, the gall-bladder was contracted and tucked away under the liver. It contained a few small calculi. The gall-bladder was excised, the abdomen closed, and patient is now alive and well, having had no recurrence of trouble. This gives us a period of fifteen years.

In the case of E.T. (No. 5), aged 67, the patient herself had undertaken successfully certain steps towards a surgical cure, that is, a gall-stone had evidently become impacted in the neck of gall-bladder or S-shaped bend of cystic duct, and instead of following the usual custom of ulcerating through into either duodenum or stomach, had wisely chosen the common duct. Whether the calculus mass, the size of a pigeon's egg, which I found in the common duct, could have been passed through into the duodenum or would have acted as a ball-valve and given rise to recurring trouble is a question. I am inclined on account of its size to think that it might not have been passed, and, as time went by, would have grown in the common duct, necessitating an operation at a later date.

The case of A.E.C. (No. 4) is interesting, as in all probability it was an earlier stage of that which was found in the case just quoted. The calculus in the S-shaped bend was obviously immovably fixed there, as shown by the tense distension of the gall-bladder by clear mucus. Sooner or later adhesions would have formed between either the stomach, duodenum or common duct, as in the last case, and at the best the calculus would have ulcerated through and so established a short circuit, after many more attacks of colic, and the risk of septic peritonitis.

The case of McD. (No. 3) was interesting to me from the skiagraphic evidence and the treatment suggested. I believe that the anatomical conditions of the colon and stomach found were probably congenital, and although some operators would have deemed a partial excision of gut and short circuiting justifiable, I do not. So far, I have never come across a case in which, to my mind, it was justifiable to follow the treatment laid down by Sir Arbuthnot Lane, for what he calls intestinal stasis.

While in London last year I had the advantage of seeing him at work on several occasions. In one instance the conditions were somewhat similar to that of McD., described above, excepting for the fact that there was no constipation, the bowels being relieved naturally once or twice a day. There was, however, a history of gall-stone colic, and on opening the abdomen, gall-stones were found in the gall-bladder. This, however, Sir Arbuthnot regarded as a mere incident, not worth troubling about. He was satisfied that there was a "Lane's kink," producing intestinal stasis, and he excised the greater part of the large intestine, leaving the gall-bladder condition *in statu quo*.

I was extremely glad to have an opportunity of watching the great exponent of this method at work, of discussing it with him, and of hearing the reasons he gave in support of his practice. But, while admiring his operative dexterity, I came away more firmly convinced than ever that such treatment is inadvisable, except in a case where there may be an annular contriction of the big gut by malignant new growth.

The case of A.E.C. (No. 4) also demonstrates the dangers arising from an improperly done suspension of the *fundus uteri* to the anterior abdominal wall. I say, improperly done, because in suitable cases the uterus can be attached to the anterior abdominal wall safely and satisfactorily. But if the sutures are simply placed between the top of the fundus and the abdominal wall, the inevitable result is that a band forms later on and this invites the occurrence of intestinal obstruction.

With regard to the closure of the abdomen after such an operation as excision of the gall-bladder, it appears to me to have everything to recommend it and nothing to condemn it. Of course, should it in any case be necessary to drain the common duct, then such a practice cannot be followed, but for many years I have found that it is rarely necessary to drain the abdomen, even after extensive resections of intestine or other serious abdominal operations.

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INTESTINAL DRAINAGE IN SEPTIC PERITONITIS.

By **Arthur J. Nyulasy, M.R.C.S. (Eng.),**
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The analysis of a large series of autopsies in cases of septic peritonitis reveals two fairly distinct pathological types: (1) That in which there is marked evidence of inflammation of the peritoneum, with little or no fluid free in the abdomen; and (2) that in which there is abundance of free fluid, but little evidence of actual peritonitis. Although in both types the cause of death is set down as septic peritonitis, it seems clear that the type with but slight objective evidence of inflammation cannot fairly be designated "septic peritonitis." Hence, although, in conformity with custom, this term is employed here to refer to both types of cases, it is to be clearly understood that the expression must be regarded as clinical and provisional, rather than as the name of a definite pathological entity, sufficient in itself to account for death.

In both types of septic peritonitis there is intestinal paralysis as the great clinical feature, the urgent symptoms and death of the patient being mainly, if not entirely, due to resulting intestinal toxæmia. This, of course, assumes that the focal factor is eliminated, that the abdomen has been largely, if not wholly, cleansed of toxic fluids, and that septic necrotic areas in the abdomen have been adequately drained. So much being granted, the only rational surgical treatment of the toxæmia is

the removal of unabsorbed intestinal toxin, and the prevention of its further production, by drainage of the intestines.

Up to date I have treated six cases of post-operative, septic peritonitis by intestinal drainage, and all the patients have recovered, a result which, I am convinced, could not have been achieved by any other known method of treatment. The last case presented some unusual features, and will now be described.

Ectopic Gestation; Paralytic Ileus with Fæcal Vomiting; Caecostomy; Recovery.

A well-nourished woman, aged 24 years, was admitted to the Perth Hospital with a history pointing to rupture of an ectopic gestation three weeks earlier. She was very anæmic, the pallor having that "dirty" appearance suggestive of sepsis. The pulse was 136, temperature 99.6° F., and respirations 28. The abdomen was very "full," there was dulness in the flanks, while a large, tender mass was felt in the pelvis.

When the abdomen was opened on 5th May, 1915, very dark, fluid blood spurted above the wound, and the cavity was found to be full of dark blood and clots. A fœtus, 4½ inches long, with a well-developed placenta, was removed, and left salpingectomy carried out. In spite of the employment of many swabs and of several large jugs of hot saline, it was found impossible to cleanse the abdomen thoroughly of clots, and, finally, while the washings were still very dark and bloody, I was compelled to close the wound on account of the grave state of the patient.

The next day the patient had a good deal of vomiting, and the abdomen became distended. These symptoms were not materially influenced by saline, pituitrin, purges and ox-gall enemata. On May 7, Sister Ross, who directed the nursing of the case, reported that both these symptoms had increased progressively during the preceding night, and that fæcal vomiting had set in. At 8 a.m. of the same day, 20 ounces of fluid had been brought up at one bout. This fluid had a sort of olive green tint, and contained small, solid, yellow masses, like fæcal matter, distributed through it; it gave off a strikingly fæcal odour, and in every respect suggested the contents of the lower ileum or caecum. Vomiting thence onwards was continuous and profuse, 18 ounces being brought up about noon, when I decided to operate. At this time the patient was in an extremely critical condition, and there seemed very little hope of recovery. The pulse-rate was 160, temperature 96.4° F., and respiration 40, and the abdomen was immobile and enormously distended, the extremities were cold and tremulous, and the patient looked intensely pale and ill.

The abdomen was opened over the caecum, and a large quantity of dark, bloody fluid welled out on to the bed. It appeared to me as if this fluid represented the last washings left in the abdomen at the primary operation, the absorptive power of the peritoneum having been greatly diminished or lost from an extensive deposit of fibrin in connexion with the ruptured ectopic gestation. Indeed, I am not sure that it would not be wiser in cases of ectopic gestation operated on many days after rupture to mop up all the saline solution used in cleansing, and then to close the wound with a dry abdomen. In the present operation of caecostomy no attempt was made to remove all the bloody fluid from the abdomen, only the easily accessible surplus being mopped away. A rubber tube was purse-stringed into the caecum, and connected with a bottle fixed to the side of the bed; the wound in the parieties was closed right up to the tube. On exposure, the caecum had appeared to be somewhat congested.

For some hours the patient remained in a very low condition, and it seemed as if she were going to die, but in the course of a few hours she improved gradually, under the influence of saline fluid, pituitrin, and the electric light bath. By 8 p.m. a decided improvement was reported, the vomiting having quite ceased, the distension much diminished, and the volume of the pulse distinctly increased. By the following morning there was a practically flat abdomen; the patient was able to take milk, and was manifesting an interest in her dietary.

A couple of days later the patient developed a right basal pneumonia, which caused some anxiety for several days, but otherwise her progress to final, complete, if slow, recovery was not seriously interrupted.

In dealing with blockage of the caecostomy tube by solid fæcal matter, my house surgeon, Dr. McMahon, found the low-pressure saline douche run through the tube an excellent expedient.

Sister Ross supplies the following table:—

Date.	Caecostomy Drainage.
7th May	10 ounces. Submammary saline infusions, 22 ounces.
8th May	10½ ounces. Bowels open.
9th May	3 ounces. Tube found to be blocked. Caecum irrigated with saline solution. One drachm dose of magnesium sulphate given, also ox-gall enemata. Flatus and fæces passed *per anum*.
10th May	9½ ounces. Caecum irrigated with saline solution.

Total caecostomy drainage up to 12th of May was 49 ounces. On this date the tube came away.

The remarkable recovery in the foregoing case supplies another link in the chain of evidence as to the extraordinary value of intestinal drainage in the treatment of septic peritonitis. When, in this case, the ex-sanguinated and almost certainly septic condition of the patient at the primary operation is recalled, and her subsequent deplorable state just prior to caecostomy is borne in mind—that excessively rare complication, fæcal vomiting, being present, in addition to enormous distension and striking collapse—it cannot be denied that the prospect of recovery was extremely small. Yet, within less than twenty hours the patient was brought from this state to a condition in which she was safe, though doubtless considerably shaken. The change from apparently inevitable death to comparative security was so rapid, so convincing, and altogether so remarkable, that it might almost be described as dramatic.

It would, of course, be too much to expect that intestinal drainage should ensure an equally satis-

factory result in all cases of post-operative, septic peritonitis, and that, as in my series of six cases, there should be 100% of successes. But if this treatment, on an extended scale, should achieve anything like such a high proportion of recoveries, as on theoretical and practical grounds, I believe it will, then in intestinal drainage will have been discovered the solution of a great surgical problem.

Reports of Cases.

RESECTION OF GANGRENOUS INTESTINE.

By **J. A. G. Hamilton, M.B.,**
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I was much interested in Dr. Worrall's paper on the above subject, and the discussion which followed, particularly as I had a similar case a few months ago.

The following are the notes of the case:—

April 10, 1915, Miss G., æt. 40 years. This patient had a sub-total hysterectomy done in November, 1914. The operator left for the seat of war four days after the operation. when I took charge of the case. She had evidently some peritonitis, as she had considerable pain, vomiting and distension for the first few days. However, she eventually made a good recovery. She kept well until the morning of April 9, when she was awakened with a sudden, severe pain in the abdomen. I saw her about four hours after, when she complained of severe pain in the lower abdomen. She had vomiting once. The bowels had been moved on the previous day; the abdomen was soft. There was no distension, but tenderness over the pubes. The temperature was normal, the pulse-rate 72, and the tongue moist. There was no marked distress. I ordered a placebo, and also an enema. On the same evening, when I saw her again, the condition was much the same. The pulse-rate was 80, the temperature normal, and the abdomen soft. There was slight distension. There had been no result from the enema; no flatus had been passed. I ordered an injection of 1 c.cm. of pituitrin. I recognized that there was probably some intestinal obstruction. She lived some distance out of town, so I ordered her to be moved to a private hospital early next morning. On examining her there, I found her abdomen markedly distended, but not rigid. The pulse-rate was 120, and the temperature normal. Her tongue was moist, and there was some anxiety of expression. I operated at noon that day, 30 hours after the onset of the pain. On opening her abdomen I found dense intestinal adhesions, with numerous bands all over the abdomen. These were carefully separated. I then found about 14 inches of small intestine lying in the pelvis in a gangrenous condition. There was no fluid in the abdominal cavity. The whole mass was lifted up and quickly clamped off. A Paul's tube was fixed in each open end of bowel, and the parietal wound partially closed. The exposed bowel was covered with moist gauze pads. A quantity of greenish, stinking fluid escaped through the tubes. Her condition improved considerably after the operation. There was very little vomiting. On April 12, forty-eight hours after first operation, I did a lateral entero-anastomosis, under local anæsthesia. The cut ends of bowel were freshened, ligatured and inverted with a purse-string suture and a lateral anastomosis done without clamps. She complained of no pain during operation until the parietal wall was raised to return the repaired intestine. She was then given a fresh whiff of ether, while the bowel was being returned and the wound sewn up. The stomach was washed out before she came to. The abdominal wound took a little while to heal, but in three weeks she was practically well. No aperient was given, but 1 c.cm. of pituitrin, given twice daily, produced a movement of the bowels on the third day. I presume that she had peritonitis after the hysterectomy, and that this had caused the numerous adhesions found, one of which had led to strangulation of the coil of the small intestine. This coil had become glued on to the uterine stump in the true pelvis.

The feature of interest in this case was the rapidity with which the coil of intestine became gangrenous, despite the absence of acute symptoms for the first twelve hours. I felt from the first that there was probably intestinal obstruction, from the sudden onset of the pain, vomiting (she only vomited three times in the first twelve hours), and the fact that no flatus passed nor any motion of bowel with the enema. She was perfectly well up to six o'clock on the morning of April 9, when she was seized with sudden, severe pain. The bowels were moved naturally on the previous evening. For the first twelve hours the symptoms of obstruction were present, but not at all well marked. There was no marked distension, and only slight increase of the pulse-rate. I was therefore somewhat surprised to find 14 inches of gangrenous bowel at the operation, although I expected to find some obstructed bowel. Patients with intestinal obstruction are notably bad subjects for operation, especially if the obstruction and subsequent infection is acute enough to cause gangrene of the bowel. There is always marked shock and poisoning by toxic absorption, and I venture to think it is better to drain the bowel at the first operation, and do an anastomosis (lateral for preference) a few days later. When the patient has recovered from the acute symptoms and has got rid of the poisonous toxic material, the anastomosis can then be done at leisure, with safety, and, if desired, under local anæsthesia. I always wash out the stomach in cases of intestinal obstruction, when the patient is under the anæsthesia, as afterwards the passage of a stomach tube gives rise to considerable distress, is generally much objected to by the patient, and in some cases is quite impossible.

I agree to some extent to the dictum that in cases of "acute abdomen," the condition of the pulse and temperature are not to be relied on, and are often misleading. This is certainly true as regards the temperature, which is absolutely unreliable in acute abdominal trouble. In the large majority of cases, however, the pulse will give us some warning, and if the pulse-rate be carefully noted every four hours, a certain but gradual rise will be found in the majority of cases. At first it may be normal, in four hours it is found to be 80-90, eight hours after it is 90-100, and so on until it suddenly runs up to 120-130. A few weeks ago I saw a patient in consultation. She had had a posterior colpotomy done a week before for salpingitis. When I saw her she had had constant vomiting for three days, with a very distended abdomen; the bowels had not acted for four days. I concluded that a coil of bowel had dropped down, had been sealed on to the opening of Douglas's pouch and had become obstructed. I advised immediate cœliotomy. At the operation, a coil of small intestine was found lying fixed in the pelvis and gangrenous. The operator decided to resect this and carry out a lateral anastomosis, but the patient died a few hours after the operation.

A CASE OF NEURO-FIBROMATOSIS.[1]

By **John Malcolm, M.B., Ch.M. (Syd.),**
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The patient, T.E., æt. 30 years, a labourer, was admitted to the Royal Prince Alfred Hospital on January 16, 1915, under the care of Dr. Sinclair Gillies, whom I wish to thank for the permission to publish these notes. On admission, the patient complained only of weakness of both legs, the process being of gradual onset.

Family History.—There was no history of tuberculosis, cancer, alcohol or syphilis.

Personal History.—The patient has been a bullock-driver for the last 10 years. He had lived in Wilcannia, N.S.W., till 20 years of age, and had been in Queensland for a few months ten years ago. Venereal disease was stoutly denied.

Previous Illnesses.—The patient stated that he has been subject to attacks of asthma, and, on inquiry, he said that he had had an attack similar to the present one twelve months previously, for which he was treated in the Narrabri Hospital. Close cross-examination revealed that the trouble at this time was confined to the joints, painful swellings of the knees, etc., and that under treatment recovery was

[1] Read before a clinical meeting of the New South Wales Branch of the British Medical Association on June 11, 1915.

rapid and complete. With the history of onset after the patient had become much overheated, it seems logical to conclude that this may have been an attack of acute rheumatism.

History of Present Illness.—Three months before admission, the patient was quite well. He then caught a cold, and became very weak. The cough at this stage was troublesome. One month before admission, the patient suffered pain after walking in both quadriceps extensor muscles. At this time he noticed that his legs were becoming weaker. This weakness progressed up to the time of admission. Numbness of the hands existed for a few days only. The subcutaneous thickenings, described below, were detected about twelve months previously.

The appetite was very good, there had been no vomiting, and the bowels had been regular. There was no difficulty in micturition.

Physical Examination.—The patient looks healthy. On admission the temperature was 97°, the pulse-rate 112 and the respirations 24 in the minute. Urinary Examination: Sp. G. 1030, acid; no albumin; no sugar; no pus; no deposit. Cardiac System: All the heart sounds very faint but clear. No dilatation of heart was discovered. Respiratory System: There was a slight cough, with a few bronchitic signs scattered throughout chest.

Nervous System.—Speech Function: The patient's articulation was peculiarly thick and indistinct. He stated that his voice had always been the same.

Motor Function on Admission.—The motor power of all extremities was found to be good in response to the usual tests. There was marked inco-ordination of movements of both arms and legs. The patient could not stand with his heels together, even with his eyes open.

Sensory Function.—On admission, there was some slight sensory impairment. Sensibility of the fingers to pain and light touch was diminished, but not absent. Sensibility of the skin of the lower extremities was slightly dulled to all forms of sensation.

All the cranial nerves were normal, except V., which partook of the abnormality to be described in relation to spinal nerves.

Reflexes.—

	Right.	Left.
Conjunctival	+	+
Pupil to Light	+	+
Pupil to Accommodation	+	+
Epigastric	+?	+?
Abdominal	+?	+?
Plantar	Not elicited.	Not elicited
Knee Jerk	Absent	Absent
Ankle Jerk	Absent	Absent
Patellar Clonus	Absent	Absent
Ankle Clonus	Absent	Absent

Cutaneous System.—Scattered over the body with main distribution on the trunk there was a number of brown patches. In shape these patches were mainly elliptical. The tint varied in different patches, but they were light brown, and appeared to fall in with Rolleston's description of *café-au-lait* patches. These had been present since birth. In addition to this patchy pigmentation there was a punctiform pigmentation practically confined to the trunk, and with maximum intensity in the lower part of the abdomen. The patient's complexion was generally of a brownish tinge.

There was a generalized thickening of all the superficial nerves. This thickening in some of the nerves was uniform; in others it was irregular. The degree of thickening was well illustrated in the ulnar nerves, which were about three times their normal thickness. Many of the minute cutaneous nerves, too small to deserve or receive an anatomical name, were as thick as a normal median nerve.

The following is a list of the nerves that could be palpated:—

Head—
(1) Both supra-orbital nerves.
(2) Both great occipital nerves.
(3) Both small occipital nerves.

Arms—
(1) Ulnar nerves.
(2) Radial nerves.
(3) Cutaneous branches of musculo-spiral and musculo-cutaneous.
(4) The nerves surrounding the brachial artery.
(5) Cutaneous branches on dorsal surface of hands.

Trunk—
(1) Branches of intercostals at various levels.

Legs—
(1) Long saphenous nerves.
(2) External popliteal nerves and their branches.
(3) Branches of anterior crural nerves.

Special Diagnostic Tests.—On admission, the Wassermann reaction was negative, and five months later it was still negative. Shortly after admission the leucocyte count was as follows: Leucocytes, 23,400; polymorphonuclear, 78%; small lymphocytes, 10%; large lymphocytes, 6%; transitional cells, 3%; large mononuclear, 2%; eosinophile cells, 1%; 200 cells counted. After the patient had become convalescent, the count was as follows: Leucocytes, 6,900; neutrophile cells, 70.5%; eosinophile cells, 5%; small lymphocytes, 16.5%; large lymphocytes, 9.5%; large mononuclear, 3%. The red cell count and hæmoglobin value were both normal.

The electrical reactions after the onset of the paralysis were tested. All the muscles responded to Faradic stimulation. The muscles of the arms reacted more readily than the leg muscles. After convalescence the electrical reactions were again tested. The findings were the same as before, except that slightly stronger stimulation was required to obtain a response from the extensor muscles of the toes.

Dr. Latham has dealt with the pathological investigation. The serum from the patches on backs of the hands showed no acid-fast organisms.

The patient was admitted on January 16, 1915. On January 23, 1915, the patient was becoming more markedly ataxic. The gait very unsteady. On February 2, 1915, he could not stand at all. On February 5, 1915, he was coughing up a considerable amount of yellow muco-purulent sputum, containing very numerous pneumococci. His general condition was bad. He was confined to bed. On February 12, 1915, there was a decrease in the amount of sputum. The bronchitic signs were decreasing. On February 19, his arms were becoming very weak, and the patient was wasting. The cutaneous nerves were much more easily felt. A relapse of bronchitic condition took place on February 27. The cough was very troublesome, and ineffectual, owing to to muscular weakness. Six weeks after admission, *i.e.*, on March 1, the patient had almost completely lost the power of all his limbs. He lay quite helplessly in bed, and had to be turned. He could not feed himself. His general condition was extremely weak, and there was great difficulty in swallowing. Fluids regurgitated through nose. The condition was unchanged on March 10, but on the 17th the cough and expectoration was diminishing. On March 30 the patient could raise himself slightly in bed. During the next two months (April and May) the patient continued to progress satisfactorily. Cough and expectoration practically ceased. He walks round the ward at present much better than he could on admission. There has been a considerable gain in weight, and the nerves, as a consequence, are not so distinctly palpable as they were two months ago.

Further Details of Physical Examination After Convalescence.—The knee jerks are now present. The sensibility to light touch in both the upper and lower extremities is still diminished, and slight foot-drop is present. Two small swellings have now appeared, one above each external malleolus (suggesting the subcutaneous tumours described by von Recklinghausen).

The treatment consisted in giving hypodermic injections of gr. $^1/_{20}$ of strychnine every four hours during the whole of his stay in hospital. Since May 1 he has had gr. 25 of iodide of potassium three times a day. In addition, he was given a senega mixture for bronchitis, along with usual treatment of bronchitic conditions.

Diagnosis.—The pathological examination of the tissue removed establishes beyond doubt that the lesion in this case is a diffuse overgrowth of the endoneural connective tissue. The examination of the specimen by microscopic methods also excludes the possibility of the condition being due to the *bacillus leprae*. This possibility is practically excluded by the small amount of interference with cutaneous sensation relative to the extensive nerve involvement.

Von Recklinghausen has described a condition of diffuse neuro-fibromatosis (usually called von Recklinghausen's disease), characterized by diffuse overgrowth of the fibrous tissue of the nerve trunks, with exaggeration of this overgrowth at irregular intervals, leading to the production of subcutaneous tumour-like swellings. Tumours of this description are not present in the case under discussion.

Motor involvement, rare in von Recklinghausen's cases, was temporarily very marked in our case.

In common with many cases reported as von Recklinghausen's disease, this case has: (*a*) Diffuse nerve thickening; and (*b*) congenital pigmentation, with (1) *café-au-lait* patches, (2) punctiform pigmentation.

There is no family history of the disease in this case, as in many of the reported cases.

Judging by reported cases, it has become the custom to report all instances of diffuse non-leprous nerve thickening as von Recklinghausen's disease, even although their clinical details in other respects may vary widely from those of von Recklinghausen's original cases.

Using the term in this widely comprehensive sense, the case under discussion may be described as one of von Recklinghausen's disease.

A particularly interesting feature is the almost complete paralysis of rapid onset, and of almost as rapid recovery. The leucocyte counts taken in the early and late stages suggest the possibility of some infective process causing a neuritic condition, superimposed upon a pre-existing state of neuro-fibromatosis.

The sputum was examined during the most acute stage of the bronchitis, and was found to contain very numerous pneumococci.

PATHOLOGICAL REPORT.

By **Oliver Latham, M.B., Ch.M. (Syd.),**

Pathologist to the New South Wales Lunacy Department.

In 1882, von Recklinghausen drew attention to a rare condition called multiple neuro-fibromatosis. He first noticed that this disease occurred in several members of one family. Fiendal, who also studied the disease, stated that it was always congenital, often hereditary, and sometimes familial.

The descriptions given of the pathological picture were somewhat indefinite and contradictory, until the various stages and manifestations had been correlated. Since that time, the following lesions have been described in connexion with the disease:—

(1) General yellowish tinge of the skin.
(2) Punctiform pigment spots.
(3) *Café-au-lait* spots.
(4) Blue spots, *i.e.*, the first stage of the formation of moluscous tumours.
(5) Tumour masses, which have been described at times as solid convoluted cords embedded in fat and fibrous tissue, scattered widely over the skin and often throughout every organ of the body, such as the intestines, liver, brain, bones, etc., at times in large numbers.
(6) Various nervous manifestations.
(7) Swellings and deformities, *e.g.*, on the lips. These are often difficult to distinguish from nævi, angiomata or plexiform neuromata. As these tumours contain no new nerve fibres and are often attached to a nerve, they are spoken of as plexiform fibromata of nerves rather than neuro-fibromata.
(8) An abnormal blood picture. A high degree of eosinophilia (up to 16%) has been noted, while some authors record an increase in the mononuclears.
(9) A diffuse thickening of nerves, due to an overgrowth of fibrous-like tissue.
(10) The occasional presence in these masses of structures indistinguishable from the various forms of sarcomata.

Considerable discussion has taken place as to whether neuro-fibromata can develop without involving the nerves. A thorough examination of the latter must be undertaken before a definite opinion can be expressed.

Neuro-fibromata have been described as occurring after infectious diseases and in certain affections of the ductless glands, *e.g.*, pituitary tumours, adrenal tumours, etc., as well as in families of idiots. They have been noted in persons dying from cachexia. Duberg recorded an acute form in which a thousand tumours appeared in the course of a week. In this case the tumours were composed of fibrous tissue and degenerating nerve fibres.

In addition to the pathological changes enumerated above, stenosis of the pylorus, requiring operative treatment, has also been recorded.

Neuromata were first described in 1805 as deep-seated tumours with painful swelling of the nerve involved. Early writers believed that these growths arose from connective tissue, and contained no nerve elements. Virchow first distinguished true neuromata, derived from nerves, histologically, from neuromata, derived from the connective tissue of the nerves, but devoid of nerve elements. He held that many of the so-called false neuromata contained unmedullated nerve fibres, which were mistaken for fibrous tissue.

Is a medullated or unmedullated nerve fibre necessarily a process of a ganglion cell? This question brings us into the well known neuron theory controversy. Bruce and Dawson described in 1913 (March number of the *Review of Neurology and Psychiatry*) a case in which there were multiple neuromata, similar to peripheral nerves in various stages of development. The tumours occurred throughout the central nervous system, and even in the adventitial sheaths of the blood vessels. The isolated masses were carefully examined in serial sections, and it was found that they contained no ganglion cells.

In describing the sections, Bruce and Dawson stated that they had been able to distinguish areas of sclerosis from areas of fibrosis. The sclerosed areas often retained the evidence of the original framework of the structure.

The following is a brief summary of the pathological changes met with in true nerve lesions, and in disseminated sclerosis:—

(1) Nerve Lesions.—A week after the cause of the lesion has begun to act, the nerve (stained by Marchi's method) would show degenerating nerve fibres, which would appear black. There would probably be some cell infiltration, consisting of polynuclear or mononuclear cells, according to the variety of irritant or the distance from the main lesion. A month or two later, some of the nerve fibres will have disappeared, and will be unrecognizable by any method. The interstitial and perivascular spaces may be filled with compound granular cells and myelin débris, as well as with other cells, and there may be some interstitial reaction. Several months later, the degenerated fibres will have disappeared completely, and their places will have been taken by the normal supporting framework of central or peripheral nerve tissue undergoing proliferation. This condition should be described as a sclerosis, and it is best demonstrated by Weigert's process.

These pictures may occur after damage to the nervous system by such widely different agents as hæmorrhage, artificial or mechanical destruction, peripheral toxins, or infections, including syphilis either in an early or in a late stage. In the last named, there is always a mononuclear cell infiltration during the early stages.

(2) As opposed to these changes occurring in a nerve lesion, the picture met with in disseminated sclerosis may be identical to any of the three pictures described, save that the myelin sheath is often degenerated and the axis cylinder intact. In disseminated sclerosis, there is, in addition, a proliferation of fibres, which do not appear to be neuroglia fibres nor yet ordinary fibrous tissue. This tissue appears to invade the grey and white matter indiscriminately. The invasion is like that of a neoplasm or of a gliomatosis of congenital origin. In addition, an interstitial neuritis has been described in this disease.

In the section which we have made from the case under review, the picture resembles that of disseminated sclerosis most closely. The tumour-like formation in the course of a nerve (a thickened nerve) is seen. Save in the bare outline, no indication of nerve structure remains; there are no bundles of nerve fibres separated into fasciculi and no peri-, epi- or endo-neurium. The whole thickness is made up of a delicate stroma of fusiform cells, with fine fibres, some of which cannot be shown to be connected with the cells. These cells possess oval nuclei and form whorls. They surround the blood vessels so intimately in some

places, as the cells do in gliomata, that they appear to enter into the formation of the latter. In certain situations the tissue resembles myxomatous tissue to some extent. In other places, bundles of fine fibres predominate over all the other structures. In the midst of this embryonic-like tissue, a few degenerating myelin sheaths can be recognized with certainty, when the section has been stained by Heller's modification of Weigert's stain. It can be seen that the myelin fibres are quite guiltless of being supported, as in normal or sclerosed nerve tissue. Each fibre is embedded in the new formation. This suggests the manner in which myelin fibres may become surrounded by the fibrosis in disseminated sclerosis. There appears to be no abnormal cell infiltration or any signs of active inflammation. It is possible that bare axis cylinders may be present, but remain unrecognized. I was unfortunately unable to prepare a section by Bielchowski's method.

Reviews.

WAR SURGERY.

This short treatise on War Surgery,[1] by Delorme, could not have appeared at a more opportune time, when so many of the profession are about to engage in work at the front. In places, the text suffers by translation, but there is no mistaking the dominant note throughout the whole book—conservatism and again conservatism. The day of the brilliant operator, who could amputate a thigh in so many seconds, is over. Why it has passed is told in the pages of this short treatise. Every surgeon should have it on his shelf.

THE TREATMENT OF CARDIAC DISEASE.

In his small volume on Cane Sugar and Heart Disease,[2] Dr. Goulston addresses himself to a subject full of interest to the medical profession. In hardly any field of medicine has more striking progress been recently made than in that connected with cardiac disease. Our knowledge of the mechanism of cardiac action in normal and abnormal states has been considerably increased of late years, largely, we are pleased to remember, by British workers. The state of nutrition of the cardiac musculature is now recognized as of paramount importance. Dr. Goulston is keenly insistent on this point, and has been seeking to benefit his cardiac patients by promoting to the highest possible degree the nutrition of their heart muscle. From the high glycogen content of the muscular tissue of the heart, the utility of dextrose in the circulating fluid in experimental perfusion of the isolated organ, and from the recognized ability of soldiers and other to perform fatiguing work on sugar as a food, he was led to try sugar as a diet and remedy for cardiac cases. He has been encouraged by his results, giving from two to four ounces of pure cane sugar a day. Even these quantities do not, he finds, cause flatulent dyspepsia, the lactic acid ferment of the intestine attacking all the simple hexoses and pentoses, but not cane sugar or milk sugar. Dr. Goulston submits his little work, consisting to a considerable extent of notes of cases, "in the hope that it may lead to the more general examination and application of a system of treatment which, in its present admittedly imperfect state, has been so beneficial."

DISEASES OF THE EYE.

As good wine needs no bush, so Swanzy's Handbook of the Diseases of the Eye[3] requires no recommendation to maintain its well-deserved popularity. In the preface to the eleventh edition, Louis Werner (now sole editor) refers to the death of his famous colleague, Sir Henry Swanzy, and points out that no change has been made in the general plan and character of the book. Here and there new matter had been added and fresh illustrations introduced. The Schiötz's tonometer is described and its use advocated, and Elliot's operation is described in greater detail. Diseases of the retinal arteries and retinal hæmorrhages receive more attention and fresh arrangement, the old hæmorrhagic retinitis being described under the term thrombosis of the retinal vein. A full page is devoted to an account of vestibular nystagmus. In the treatment of dacryocystitis, Toti's and West's operations are referred to, but a fuller description of these procedures would have been more acceptable. To those unacquainted with previous editions of this work, the reviewer confidently recommends it as a reasonably complete, reliable and charming text-book.

[1] War Surgery, by Edmund Delorme, translated by H. de Mérie, 1915. London: H. K. Lewis; Cr. 8vo., pp. 248. Price, 5s.

[2] Cane Sugar and Heart Disease, by Arthur Goulston, M.A., M.D. (Cantab.), 1914, London; Baillière, Tindall & Cox; 8vo., pp. 107. Price, 5s. net.

[3] Swanzy's Handbook of the Diseases of the Eye and Their Treatment, by Louis Werner, M.B., F.R.C.S.I., 1915. London: H. K. Lewis; 11th Edition; pp. 646, 8vo.; illustrated. Price, 12s. 6d.

SHORTAGE OF RESIDENT MEDICAL OFFICERS.

The position at many hospitals in regard to the resident staff is becoming acute. From Brisbane the report comes to the effect that a serious shortage exists, and that there is no prospect of relief. We understand that one of the Medical Officers, Dr. M. G. Sutton, is about to proceed to the front, and his position has not yet been filled.

From Adelaide we have received an appeal for assistance to secure suitable medical practitioners as resident medical officers. The task of finding men is extremely difficult, and it may be said that the supply of men willing to serve at hospitals and as *locum tenentes* to private practitioners is exhausted, at all events for the present.

A similar serious position appears to exist in New Zealand. At a recent meeting of the Auckland Hospital Board, it was decided to increase the staff by four resident medical officers, in view of the strain which is being put on the present officers. The Board determined to advertise for men at £400 per annum each. The honorary staff has undertaken to assist in the work of the hospital. It is by no means certain that the four practitioners will be procurable.

THE BLANCHARD ENQUIRY.

The enquiry conducted by Mr. W. W. Alcock into the departmental charges directed against Dr. Blanchard, the District Medical Officer of Perth (see *The Medical Journal of Australia*, July 17, 1915, p. 67) has been concluded, and the Royal Commissioner has exonerated Dr. Blanchard, but has found that he acted indiscreetly. He recommends that the office of District Medical Officer should be a whole-time office. We propose to publish a précis of the evidence, and the findings of the Royal Commissioner in a future issue.

AN ABORTIONIST SENTENCED.

It will be remembered that on January 18, 1915, Thomas Hodgson and Kathleen Graham were charged with having performed an illegal operation in Melbourne (see *The Medical Journal of Australia*, April 10, 1915, p. 444). After an adjournment, each prisoner was tried separately in the month of March and found guilty. The sentence was deferred pending appeal. On May 5, 1915, the female prisoner appealed before three judges, and the appeal was dismissed. On the 10th, Dr. Hodgson also appealed. In his case it was held that there was no evidence of collusion, and that none of the circumstances were inconsistent with the innocence of the accused. The conviction was therefore quashed.

On July 15, 1915, Kathleen Graham was brought up for sentence. An application for leniency was made on the ground that the prisoner was 69 years of age, and was suffering from a cardiac affection. In imposing the sentence of one year's imprisonment, Mr. Justice a'Beckett remarked that he was passing a lighter sentence than was imposed upon persons who had committed similar offences as a rule, because of the prisoner's age, the impairment of her health, and the fact that she possessed sufficient professional knowledge to avoid risking the lives of her patients.

The fact that Kathleen Graham was tried for the crime of procuring abortion and was found guilty, in our opinion, is distinct evidence of the extreme danger of this woman being free to attend pregnant women in a professional capacity. We trust that, if her health, after she has served her sentence, is comparatively satisfactory, the police will exercise rigid supervision on her practice.

The Medical Journal of Australia.

SATURDAY, JULY 31, 1915.

The Medical Profession and the War.

The Federal authority has determined to augment the Australian General Hospital in France by an additional 1040 beds, thus bringing the total number up to 2000. The equipment will be undertaken in England, but the personnel must be obtained in the Commonwealth. To staff the second portion of the hospital, some 36 medical officers, 15 non-commissioned officers, 80 nurses, and 170 orderlies, will be required. We understand that the staff will be appointed with as little delay as possible. In addition, practitioners will be sought from time to time for reinforcements and the organization of a fifth unit is under consideration, and will soon have to be effected. On all sides there is evidence of a larger demand for medical officers for service abroad with the Australian troops as well as with the Royal Army Medical Corps than the supply can cover. Something approaching a shortage is admitted by the Federal authority, and it is therefore disconcerting and puzzling when we learn of medical men receiving but little encouragement when they make application for commissions. It may be assumed that in each Military District the Principal Medical Officer is required to find a specific number of men to meet the immediate requirements. He would therefore not be authorized to accept for service more men than he has been asked to provide, notwithstanding the fact that he must be aware that there is a grave risk of eminently suitable men being passed over if their services are not immediately accepted. It would appear to be a wiser course if the Principal Medical Officers were to take the applicants into their confidence in so far as the requirements of the Department are concerned, and if they were to inform the latter what the chances were for a commission within a reasonable time. Within the past few days we have learned of instances of suitable men making application and leaving the Barracks without knowing whether their services will be accepted or not.

Careful consideration of the conditions and of the resources of the profession in the Commonwealth have led us to form the opinion that every man, who is willing to serve, and who is suitable for military duties, can be utilized to advantage by the Department of Defence. The round robin which the British Medical Association is handling will, without any doubt, divulge the facultative strength of the profession for military duty. Not only will it be possible to determine how many men will be available for home duty to look after the returned wounded, but the number of those willing to undertake service abroad will also be known. The effect of this enquiry should be excellent from several points of view. One of the greatest uses would be if the British Medical Association acted as a sort of middleman between the practitioner and the military authority, so that when men are required, practitioners would not be left in doubt as to the fate of their applications.

In this connexion, it is essential, if the profession is to perform its work adequately and economically, that some idea may be formed as to the amount of work entailed in the treatment of the returned wounded and sick soldiers. Conflicting opinions have been expressed both as to the number of men admitted to the various military hospitals, and also as to the form of treatment which will be required. There does not appear to be any justification for this conflict of opinion. The men, who have been termed invalids by the Director-General of Medical Services, will require either institutional treatment or home care, with medical supervision. In the latter case, the chief task to be performed by the doctor will be to fill in a certificate at long intervals recording progress. Active treatment will rarely be required, and should an intercurrent affection set in, the patients will be transferred to a military hospital, save under exceptional circumstances. On the other hand, the patients in hospitals will belong to one of two classes. In the first, surgical treatment will be necessary to remedy defects inflicted by wounds. The operations in these cases will be of a plastic or repairing type, rather than of the nature of urgent surgical interference. In the second group will be those patients, whose illness or injury and their complications assume a more acute form, and who will require assiduous medical or surgical attention to save them from death or

permanent invalidity. There is ground to suppose that this second class will be small. But even if the majority of the soldiers will not tax the time and skill of the practitioner in the country at all severely, it is nevertheless advisable for practitioners to be prepared to lend a ready and willing hand to the Commonwealth. Should they be led to think that few men and little work are required, Australia will run the risk of failing in an important duty.

PROPORTIONAL REPRESENTATION.

Mr. John Humphreys, the energetic and resourceful Secretary of the Proportional Representation Society of London, is visiting Australia for the purpose of stimulating intelligence interest in a scientific and practical electoral method. At present he is in Tasmania, and in a short time he proposes to journey to Sydney and other cities in Australia. This opportunity should be seized by medical practitioners who are not familiar with the Hare system of the single transferable vote, to study this ingenious method and to apply it to electoral procedures within the British Medical Association.

Not long ago, the *British Medical Journal* published a full account of the method on the occasion of the appearance of the Society's magazine, *Representation*. Following this exposition of the method, a trial was given to the system by the Metropolitan Counties Branch. The result was eminently successful. During the course of a succession of four or five years, the Branch Council was returned as a result of an election conducted in accordance with this system, and it was recognized that each candidate returned had the full confidence of his colleagues. No more eloquent argument is favour of it could be adduced than that given by a well-known club in London for refusing to adopt it. The officials, after analysing the method and listening to the views of those who had studied it closely and conducted elections at which it was applied, determined that it would make it impossible for those in office to guarantee continuity of the party then in power. In other words, it is impossible for a small party to manœuvre a single transferable vote election to the advantage of the party.

The system depends on the principle that in a popular vote, if the surplus votes are utilized in accordance with the desires of the electors, the results will reflect the views of the electorate much more accurately than if no notice be taken of the number of votes required to ensure election. All the elector has to do is to mark the candidates in the order of his preference, and if his first choice is already elected, his second vote can be utilized. In practice, it can be demonstrated that an assembly returned in this manner consists actually of the same proportion of the various parties as the electorate which returned it. The objection that the system is too complicated for practical, every-day elections is met by the fact that in those cases in which it has been employed—and they are not few—the number of spoiled votes is relatively smaller than the number of spoiled votes at an ordinary election. The only essential which may give rise to some difficulty is the grouping of constituent areas in order to form electoral divisions to be represented by three or more members. In the case of the Branch Councils of the British Medical Association in Australia, no difficulty would arise, although the system could not be adopted for the election of the Federal Committee.

THE DUTY OF PARENTS AND SCHOOL HYGIENE.

Australians have been accustomed to hear extravagant claims made in regard to enterprises and functions controlled by the State. In some cases these panegyrics are voiced loudly to drown the complaints of those who have not been benefited by national organization. In other cases they are expressed by well-meaning enthusiasts, frequently civil servants, who believe that only through Departmental action can any progress in social advancement be achieved. Such enthusiastic persons are often blind to other obvious channels for attaining their desired objects. The medical officers of the Victorian Department of Education, in a report, which contains a large quantity of valuable information, and is a record of the excellent manner in which they have performed their duties, state that the most important if not the only safeguard we possess of the growth of the child on proper lines is the medical inspection of school children, which allows of defects and diseases being detected and remedied at the earliest possible moment. Far is it for us to decry the medical examination of school children, or to under-rate its value for the well-being of our future citizens. Yet we venture to point out that parents, as a rule, will have a greater interest in the growth and healthy development of their children than any medical officer of schools. No bond knits persons closer than the parental tie. The parents who have nurtured and

clothed their children and are entrusted with their mental and moral training are rarely blind to any serious defect in their health. It is on the parents that the final responsibility rests for the healthy upbringing of their offspring. We would deprecate any attempt to diminish this parental responsibility or to minimize its importance in the opinion of the community. In our judgement, it will be an evil day when parents think that they can pass their responsibility for the health of their children to the medical officer for schools. Parents should be so instructed that they recognize the importance of a healthy body for the future happiness of their children. Family physicians should be watchful as to the growth of the children of their patients. Medical officers of schools can co-operate to point out defects to be remedied. No means should be neglected that will aid parents in having an intelligent appreciation of the health of their children. We trust that the day is not far distant when, in every State of the Commonwealth, every child will have at least the opportunity of learning something of the physiology and the hygiene of the human body, so that in later years the privileges of a parent can be exercised with reason and some knowledge.

HOSPITAL ACCOMMODATION FOR BACILLUS CARRIERS.

In the early days of July, a deputation from the Children's Hospital, Brisbane, waited on the Home Secretary of Queensland, the Honourable D. Bowman, for the purpose of calling his attention to the cause of overcrowding at the Children's Hospital and to the want of provision for children who, though clinically quite well, were a danger to the community on account of the bacilli they harboured in their throats. Dr. Jefferis Turner pointed out that the hospital contained accommodation for 16 patients. The number of children in the hospital at the time was 32, while the daily average in October, 1914, had been 39. The majority of these children had recovered from an attack of diphtheria, but were still infectious. He urged that additional accommodation should be applied. The hospital at Wattlebrae had helped them to some extent, but, as was pointed out by subsequent speakers, this institution did not receive convalescents. The reply of the Home Secretary was satisfactory in so far as the immediate prospects were concerned. He promised to refer the matter to the Health Commissioner, and to bring it to the notice of the Government. But he went on to express the hope that at some future time, these difficulties would be prevented by the nationalization of all the hospitals in Queensland. How the millennium was to be brought about was not explained. It is a common argument, when difficulties arise in connexion with public hospitals, to ascribe them to the defects of the voluntary system, and to promise better conditions under State control. But the improvement is not always obvious when the State takes the reins, and in many instances the administration and management is decidedly less good. In the matter of hospitals for the treatment of the notifiable exanthemata, State or municipal control is the rule in Europe, and, on the whole, the institutions work well. But it must be remembered that admission into these hospitals is compulsory, and the patients are isolated as part of the general hygienic programme for the protection of the public. When isolation can be efficiently carried out at the homes of the patients, there is no need to send the patients away. But even when the patient belongs to a family in affluence, it may be advisable to provide institutional treatment. In London, use is made of the Liverpool Road Fever Hospital for paying patients by the members of the middle class to a considerable extent. The great defect of private or paying hospitals of this kind is the fact that in but few instances is there a convalescent home situated in the country to which patients may be sent during the convalescent stage. Provided that Mr. Bowman will limit his nationalization of hospitals to those intended for the reception of fever patients of the poorer class, no objection would be raised, but what is really required is the provision of a convalescent home for those recovering from diphtheria.

THE NEW ZEALAND HOSPITAL SHIP.

The enthusiasm and generosity with which the primary stage of equipping the hospital ship was carried out in the Dominion has met with a very gratifying second stage, and New Zealand has every reason to be proud in her most recent contribution to the Empire. The hospital ship, formerly the *Maheno*, is said to be one of the best, if not the best, hospital ship afloat. Her exterior has undergone a great change, and is now a thing of white, with green bands and red crosses. But the transformation of the outside is small as compared with that of the interior. Cabins have disappeared, the saloon has been transformed, and no particle of the old accommodation is left. There are two special wards for five patients, an officers' ward and non-commissioned officers' ward, and ten wards for the rank and file. The large wards contain 64 beds. One row of beds is composed of fixed cots, while a second row is so constructed that the individual cot can be allowed to swing with the movement of the vessel or fixed by means of a metal plate dropping into a slot. The arrangement of the wards is excellent, and admits of easy supervision and nursing. It is proposed to admit the more severely wounded or ill soldiers into the wards amidships, while the less serious cases will be found in the space over the transom. The total number of beds for patients is 388, but if necessary the officers' and nurses' drawing-room can be transformed into a ward for 60 additional beds.

The patients are received into the ship through the iron water-tight doors in the ship's side, at the level of the lower deck. They will be hoisted on stretchers, which act as mattresses for the beds. Trolleys are used to convey the stretchers along the passages, and capacious lifts to transfer them from

the lower to the main or upper deck. They will be required to wear hospital clothes during convalescence on board, and elaborate means are taken to ensure the proper sterilization of their own clothes on their arrival. The laundry is exceedingly well equipped; superheated steam cauldrons, electric apparatus for ironing, drying (centrifuges, etc.), and pressing being provided. In connexion with the sterilization apparatus, the most modern plant has been introduced for dealing with dressings, instruments, etc., and a special system is utilized for the automatic delivery of the sterilized instruments and dressings on to sterile trays, on which the former are conveyed into the operating theatre or wards.

There are two operating theatres. The smaller one is intended for minor surgery, and is adequately equipped. The larger theatre is modern in every respect. As usual, the sterilizing room and the anæsthetic room are adjoining it. The table is a gift of the Canterbury Division of the British Medical Association, while the rest of the furniture has been made from designs by Colonel Collins. It is unnecessary to mention that both in the operating theatres and elsewhere, asepsis has been attended to and white enamel and bright metal is everywhere in evidence.

Of great importance is the X-ray room and the bacteriological laboratory. Both of these departments have been planned with care and consideration to the possible requirements of the hospital. The dispensaries contain all that is likely to be required. The kitchens, the drying rooms, the baths and other apartments have been planned with skill and expert knowledge.

The staff are housed on the upper deck. The cabins in this part of the ship are comfortable and homely. The dining saloon for officers and nurses and the drawing-room are both convenient and artistic apartments.

The wounded soldier who finds medical or surgical treatment aboard the New Zealand hospital ship will regard himself lucky. No field hospital could offer him the comfort or security which this ship can provide, and but few base hospitals are as well equipped.

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THE CHILDREN'S HOSPITAL, PERTH.

Few hospitals have been put to a severer test than the Children's Hospital, Perth, has been put during the past twelve months. Attention was called some months ago to an unfortunate incident, which involved a disagreement between the Resident Medical Officer, the Nursing Staff and the Hospital Board. This led to a strike of the Matron and Nurses, and eventually to a resignation of the Medical Officer under conditions which we ventured to regard did not justify the Board in accepting it. The troubled waters had scarcely regained their tranquility when a rougher storm broke out. This time the Board found itself in financial embarrassment, and the continued existence of the hospital was for a time seriously threatened. With a considerable bank overdraft and a limited income for maintenance, the difficulty in providing for the sick children of the fair city was great. Two wards have been closed, and the Board have regarded the future with much anxiety. In addition, the shortage of medical officers, which affects every hospital in the Commonwealth, has not left this institution untouched.

While struggling with a limited supply of the wherewithal to keep things going, the Board has been subjected to attacks on the scorce of alleged extravagance. This charge has been met in the monthly report for June. The maintenance account reveals the fact that the cost for the year was £87 4s. 6d., and for the previous year £87 5s. per bed. This sum is not excessive, especially when it is remembered that prices have risen considerably within recent months. The hospital is using about £10,000 per annum, and of this sum under £600 is being paid in salaries for the office staff. Furthermore, the Board had been compelled to meet certain capital charges out of current income, which had increased the difficulty of financing the institution during the time of stress.

An appeal for £3000 had been made, and Mr. Boan had generously promised the sum of £500, provided that the balance could be raised. Of the £2,500 required, over £2,000 had been secured, and the Chairman is confident that the balance will be forthcoming. In spite of the numerous and urgent calls which are being made on the charitable public at the present time, we cannot believe that the well-to-do of Perth will allow one of its most deserving charities to fail for want of a comparatively small sum. The two closed wards should be opened without delay, and it is to be hoped that in the next report the Board will be in a position to state that the children applying for indoor treatment find beds in the wards, and are no longer relegated to the out-patient department.

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THE CASE OF DR. SCHLINK.

The enquiry which is being conducted by Mr. Justice Rich into the condition of the Liverpool Camp has advanced several stages since we went to press last week. On July 23, His Honour presented an interim report to the Governor-General, and this report has been laid on the table of the Senate. The report deals with the sanitary condition of the latrines, with the efficiency of the Australian Army Medical Corps in general, with the care of the teeth of the troops, with the supply of hot water and analogous matters. The terms will be published in a future issue. No mention is made of the charges levelled against Dr. Schlink.

On July 24, a witness named Isabella McKinnon, a telephone operator in the employ of the Postmaster-General, gave some startling evidence in connexion with a conversation which she stated had taken place in Dr. Schlink's private consulting room in February, 1915. She insisted on the correctness of her version of the conversation, which, as recited, suggested a degree of disloyalty on the part of Dr. Schlink. She refused to reply to the question put in cross-examination whether she had communicated with the Minister for Defence on the subject. Dr. Schlink was called, and denied on oath the majority of the suspicious statements. This incident is recorded at this stage, because it appears to be the first occasion on which anyone has been brought forward with a specific charge against Dr.

Schlink. The remainder of the evidence, in so far as it affects Dr. Schlink, or is of interest from a medical point of view, will be published when the Commissioner issues his report.

THE GIFT OF THE DOCTORS' WIVES AND THE MEDICAL WOMEN OF NEW SOUTH WALES.

A meeting of the organization appropriately styled the Doctors' Wives and the Medical Women of New South Wales was held at the B.M.A. Building, 30-34 Elizabeth Street, Sydney, on July 23, 1915, Lady Anderson Stuart, the chairwoman, presiding.

Mrs. Binnie, the Honorary Secretary, read the following report:—

Since the last meeting the officers of the fund have been active in communicating with all the wives of doctors and women doctors in the State, and they have responded most cordially to the invitation to contribute to the fund.

The total amount received up to the 21st inst. was £669 7s. 6d., which I think we ought to regard as most satisfactory.

The details of receipts and expenditure will be given by the Hon. Treasurers in their Report.

As you know, it was determined at the last meeting that the money should be given to the Red Cross Society.

The Red Cross Society was accordingly consulted, and Miss Langer Owen, when we first saw her about it, asked us to wait for a reply which was expected to a message sent to England, to ascertain what was most required. The reply subsequently came to hand to the effect that at least six motor ambulances were wanted as well as some run-about cars.

It was decided, therefore, that the money should be spent on a motor ambulance.

Five hundred pounds was handed to the Red Cross Society on account, for the purchase of an ambulance.

It was arranged that the ambulance should bear the inscription: "From the Doctors' Wives and Medical Women of New South Wales."

It will go to one of the Australian base hospitals at the front.

The balance of the money, now in the hands of the Committee, together with any more that may come in, will be given for the Australian wounded to the Red Cross Society in furtherance of its objects.

The report was received and adopted.

Mrs. Lane Mullins reported that the sum of £688 6s. had been received up to July 21, 1915. Of this sum £500 had been sent to the Australian Red Cross Society (New South Wales Division), for the purchase of a motor ambulance, £15 8s. 2d. had been expended on postages, stationery and printing, and the sum of £172 18s. was in hand. Since that date a few additional subscriptions had been received.

The Treasurer's report was adopted.

Mrs. Rygate said that she was of opinion that should the war continue and the need for further assistance be felt, the wives of the medical men would be prepared to re-open the fund and contribute another sum. She was glad to receive the assurance that any balance which might be left over after the motor ambulance had been purchased would be used for other Red Cross purposes.

A cordial vote of thanks was passed to the chairman, Lady Anderson Stuart, the Honorary Secretaries, Mrs. Binnie and Mrs. Sydney Jamieson, and the Honorary Treasurers, Mrs. Lane Mullins and Mrs. Wilfred Fairfax.

THE TOBACCO FUND.

Contributions to our tobacco fund (in connexion with the Over-Seas Club Tobacco Fund) have practically ceased during the past fortnight. We regret that this should be so, since all we have asked of members is to spare a shilling or two for a purpose which must appeal to all. We venture to express the hope that members will be induced to hand a small contribution to our representatives in the various cities or to send it to this office in order that we may be able to remit a reasonable sum to London within a week or two. The first remittance of £32 19s. was despatched a fortnight ago. For the convenience of Adelaide members Dr. Gerald Hayward has kindly consented to receive contributions from members in South Australia.

Second List.

	£	s.	d.
Per Dr. C. O. Birch, of Petersham	1	5	0

THE MEDICAL INSPECTION OF VICTORIAN SCHOOLS.

The Medical Officers (Drs. Harvey Sutton, Jane S. Greig and Eileen Fitzgerald) have furnished a general report and a number of special reports to the Director of Education in Victoria on their work in 1914. They have continued their system of biennial examinations. Every high school has been visited once in the past two years. By careful re-visiting one or two new schools have been included in the series. It is, however, felt that, in the interests of the work, it is not desirable to attempt to add any new schools in the future, at least as long as the staff remains at its present strength. To endeavour to deal with the whole of the school population would be quite impossible. It is thought that it is better to do a part thoroughly than to attempt to rush over the whole, as the result would be unsatisfactory, and the examinations necessarily superficial.

They believe that realization has not come to Victoria that the medical inspection of all school children is not an extra, but an essential, part of any properly organized modern system of education. Comparing their position with that of the motherland, they point out that Great Britain has in its schools 1,111 School Medical Officers (578 full-time, and 533 part-time), or the equivalent of 853 full-time officers. Excluding the 184 Medical Officers of Health, this leaves 669 entirely engaged in school work, who deal with 1½ million children a year, *i.e.*, about 2,500 each. Each member of the Victorian staff, in addition to their other duties, is able to examine 4,000 children a year. This compares favourably with the best English rates. To deal with the rest of the State, an addition of, at least, six Medical Officers would be required for the urban areas, costing an additional £3,000 per annum, or £5,000 in all. Another £4,000 per annum would be required for the work in the rural districts. For a complete scheme, embracing School Nurses, etc., about 1s. a head of school population would be sufficient. This amounts to an addition to the education vote for primary education (about £5 per child) of about one per cent. It will be seen that the cost should not be any bar to the adoption of a complete medical inspection. The examinations for the Defence Department, much less complete and far-reaching in their effects, cost the Commonwealth 2s. 6d. per head. In the case of junior and senior cadets, boys of 12 and 13 years respectively, it would best be undertaken by the education authority, by whom these boys are necessarily controlled. Thus, economy of public money and reduplication of effort would be simply achieved. In connexion with Defence matters, they emphasize the view that the whole defence work is dependent on the proper physical development of the young Australian. They consider that the most important, if not the only, safeguard that we possess of the growth of the child on proper lines, is the medical inspection of school children, which allows of the detection of defects and diseases and their treatment at the earliest possible moment.

They draw attention to what is known as "following up." The Medical Officers are at present restricted in their duties to advising parents of the presence of defects in their children by means of notices distributed after the examination of each school. The teacher encourages action on the part of the parents by periodical inquiries. Fresh notices are sent out concerning the more serious cases just before the Christmas holidays. The contact between the Department and the parents is thus a paper one, and in every part of the world the need of a more personal contact is felt to be necessary. They think that the best agent to bridge the gap is the School Nurse, who "follows up" defective children to their homes, interviews their parents, explains the needs of the cases, organizes visits to hospitals for treatment, and inculcates hygienic conditions in every way for the child, the school, and the home.

Abstracts from Current Medical Literature.

THERAPEUTICS.

(39) Hypertonic Salt Solution in Anuria Due to Salvarsan.

R. T. Woodyatt report the treatment of a case of poisoning by salvarsan (*Journ. Amer. Med. Assoc.*, May 29, 1915). A man, aged 45, had an aneurysm of the thoracic aorta, extending from the diaphragm upwards. He had been treated with iodides and mercury, but suffered from great pain. Within eight days he received three doses of 0.3, 0.3 and 0.4 gm. of old salvarsan. Forty-eight hours later he felt ill and became feverish. The flow of urine diminished, and, in a few hours, ceased. The patient was given by the bowel 200 c.cm. of a hypertonic solution of salt containing sodium carbonate. The dose was repeated two hours later. Vomiting set in, and a florid, erythematous rash appeared over the face, neck and trunk. Four hours after the second enema the patient passed 45 c.cm. urine, and four hours later 120 c.cm. more. A third enema was administered, and in six hours the patient had passed 600 c.cm. urine. On the second day the urine totalled 900 c.cm., and on the third day 1,500 c.cm. Headache and malaise persisted for a week. Complete recovery ensued, and since this experience the patient has received three doses of 0.4 gm. of salvarsan, without apparent injury and with amelioration of his general condition.

(40) Fuller's Earth as an Antidote for Poisoning by Alkaloids.

B. Fantus (*Journ. Amer. Med. Assoc.*, May 29, 1915) has completed an investigation of the absorptive power of Fuller's earth for alkaloids, and has tested its antidotal value in cases of poisoning by alkaloids. He finds that Fuller's earth, especially when combined with a laxative dose of sodium di-hydrogen phosphate, is capable of lessening the absorption in man of substances taken up by Fuller's earth. Alkaloidal compounds with Fuller's earth are not absorbed from the stomach, though they are gradually dissociated in the intestines, producing a delayed and milder general action. It has antidotal value for poisoning by morphine, cocaine, nicotine and ipecacuanah. It has less value in poisoning by strychnine and aconite, though even in these cases it is capable of saving life when combined with sodium phosphate. It is of little value in poisoning by colchicine. The power of absorbing alkaloids is more strongly developed in some samples than in others. Dealers should state the absorptive value on the label. Pharmacists should demand specimens of high activity. Lloyd's reagent possesses this property in the highest degree. Fuller's earth is not synonymous with kaolin. It is a substance with markedly different powers.

(41) Benzole in Leukæmia.

F. H. Smith records the treatment of a case of splenic leukæmia during 19 months with courses of benzole (*Journ. Amer. Med. Assoc.*, May 22, 1915). The patient was a boy of 13 years when first seen. His spleen occupied four-fifths of his abdominal cavity, while the leucocytes numbered 499,000. The boy is still living, is attending at school, expresses himself as being entirely well and on casual observation would seem so. He has received 20 drops of benzole (C_6H_6) three times daily and at times 25 drops thrice in the day. Small doses appear to be useless. They have no leucotoxic action, and may possibly stimulate leucocytic generation. The drug must be administered intermittently in courses lasting two or three weeks. The dosage must be checked by leucocytic enumerations.

(42) Intravenous Injection of Mercurialized Serum in Syphilis.

L. Thompson (*Journ. Amer. Med. Assoc.*, May 1, 1915) has devised a method for administering mercury intravenously without the occurrence of phlebitis and peri-phlebitis. He prepares serum from 40 c.cm. blood obtained by venepuncture. It is not necessary to use autogenous serum. A solution of mercuric chloride is made, containing 22 mg. per cubic centimetre. The serum is divided into two parts, one-third is placed in one tube and the remainder in a second tube. The mercurial solution is added to the first tube in the proportion of 1 c.cm. to 2 c.cm serum. A heavy precipitate appears, which is completely dissolved on the addition of the second portion of serum. The mixture is heated for half an hour at 55° C., when it will keep indefinitely. The mercurialized serum contains 22 mg. in 7 c.cm. The initial dose employed was 1.75 c.cm., which was increased to 7 c.cm. Severe ptyalism occurred in one case after 131 mg. had been administered. He has now given 68 injections in eight cases, and in no case has there been the slightest amount of phlebitis. The intravenous method of giving mercury is not the method of choice in all cases, but it is so in certain cases in which quick results must be brought about, and in those cases in which great pain results from intramuscular injections of mercury.

(43) Intraspinal Administration of Morphine.

H. McGuigan and E. L. Ross (*Journ. Amer. Med. Assoc.*, May 1, 1915) sound a warning in regard to the action of morphine given by intraspinal injection. It is well known that morphine increases the irritability of the spinal centres while exerting its narcotic influence on the higher portions of the central nervous system. In some animals this effect on the spinal centres is so pronounced that the administration of morphine produces convulsions. The authors have observed that the seat of administration influences the action of morphine on the nervous system. They noted the occurrence of severe convulsions after the intraspinal administration of morphine. In other cases they have seen increased reflex excitability. They advise great care in the use of morphine by this method, which is coming into such general use.

(44) Pulmonary Congestion due to Adrenalin.

W. E. Dixon and F. Ransom (*Journ. Pharmac. and Exper. Therap*, July, 1914) have investigated the effects of injections of adrenalin on the pulmonary vascular conditions. They find that the pressure in the pulmonary artery rises and attains a height two or three times that of the normal. This rise of pressure precedes the systemic increased pressure. The pressure in the pulmonary vein rises to a height four or five times that of the normal. From these results it was expected that the lungs would be congested. The authors found the vascular volume of the lungs greatly increased. From their experiments they conclude that any cause that raises the systemic blood pressure also causes congestion of the lungs. Pulmonary vascular congestion leads to a diminution in the amount of air entering into the lungs, and thus diminishes the pulmonary ventilation.

(45) Solubility of Lead Sulphide in Human Gastric Juice.

A. Woelfel and A. J. Carlson have examined the solubility of lead sulphide ore dust in human gastric juice (*Journ. Pharmac. and Exper. Therap.*, July, 1914). They employed the appetite juice obtained from a patient with a permanent gastric fistula. Its free acidity varied from 0.43 to 0.45% hydrochloric acid. They found that lead sulphide is soluble in gastric juice. The solubility of lead sulphide is less than that of basic lead sulphate or basic lead carbonate, but the sulphide is sufficiently soluble to be dangerous to the health of persons engaged in the mining and milling of lead sulphide ore, if the mining or milling processes involve the production of dust. The persons engaged in mining and milling lead sulphide ore should therefore be protected in the same way as workers in other dangerous lead industries.

(46) Physiological Standardization of Pituitary Extracts.

G. R. Roth has sought a standard with which commercial preparations of pituitary extract can be compared (*Journ. Pharmac. and Exper. Therap.*, July, 1914). As chemical bodies of known constitution cannot be obtained from these extracts they must be tested by physiological methods. The investigator has used the contraction of the uterus of the virgin guinea-pig for this purpose, as suggested by Dale and Laidlaw. A substance that does not undergo change is required as a standard for comparison with the preparations of the pituitary gland. After testing a number of substances the author found that a solution of beta-iminoazolylethylamine in Locke's fluid fulfilled all the

required conditions. This body is present in ergot in consequence of the bacterial decomposition of histidin. It is employed in a dilution of 1 part in 20,000,000 parts of Locke's solution.

(47) Quinoidine.

A. G. MacGilchrist has prepared a report on this substance for the Cinchona Derivatives Inquiry (*Indian Journ. of Med. Research*, April, 1915). Quinoidine is the name given to the mixture of uncrystallizable alkaloids from cinchona bark left after removal of the four crystallizable alkaloids, quinine, cinchonine, quinidine and cinchonidine. It is sometimes called amorphous alkaloid, though this name is properly reserved for the mixture of alkaloids obtained after the separation of the bulk of the quinine from the extracts of bark. Commercial quinoidine contains 75% of alkaloids. It is not as toxic to paramœcium and other protozoa as quinine. Tests in the laboratory and in hospital show that it is much inferior to quinine as an antimalarial and anti-protozoal agent.

UROLOGY.

(48) The Treatment of Urethral Stricture.

R. H. Russell (*Brit. Journ. Surgery*, May, 1915) describes a method of treating stricture of the urethra by excision which he considers is applicable to all cases save those which can be dealt with satisfactorily by sounding. The treatment is based on the fact that when the urethra is slit up from the membranous portion to the meatus, or to any less extent, healing takes place in all cases, provided that the wound is kept free from urine during the process. The operation is performed as follows:—An inverted V-shaped incision is made in the perineum as in perineal prostatectomy. The membranous portion of the urethra is then exposed by dissection, and opened longitudinally. The urethra is then slit up to the posterior margin of the stricture. The stricture is divided on a Wheelhouse sound or similar instrument. In the next place the periurethral cicatricial tissue includng the mucous membrane of the strictured portion of the urethra, is resected, and the free ends of the mucous membrane brought together after undercutting with five catgut sutures. A rubber catheter is passed through the membranous portion into the bladder. Two deep silkworm gut sutures are placed on each side of the limbs of the inverted v-shaped incision. No further sutures are inserted unless the scrotal and penile portions of the urethra have been opened up. In this case, skin sutures are inserted, and the urethra is left to heal by itself without special suture. The catheter is retained *in situ* for about seven days. The wound heals without delay when the catheter is removed. No instrument is passed through the urethra for more than a month after the operation. Eight cases are cited to illustrate the value of the method. The author claims that it represents a marked improvement on other forms of urethrotomy, both internal and external.

(49) Symptomless Renal Hæmaturia.

In dealing with symptomless renal hæmaturia, D. Newman (*Brit. Journ. Surgery*, No. 8, 1915) limits his consideration of the subject to (a) growths in the renal pelvis, (b) aneurysms of the renal artery occupying the renal pelvis or rupturing into it, (c) calculus without pain, and (d) early renal tuberculosis. The cystoscopical findings are worked out with minute care, more especially in relation to renal tuberculosis. Newman has come to the conclusion that when one ureteral orifice is normal and the other is altered, the renal lesion is always on the side of the altered ureter. He states that the form of deformity of the orifice and the lesions found in this situation indicate the nature of the renal disease. In the third place, he finds that from the character of the urine issuing from the ureter, the nature of the morbid changes in the corresponding kidney can be ascertained. The frequency, size and regularity of the emission of urine from the ureters indicate the functional activity or the presence of undue irritation of the corresponding kidney. The differential diagnosis is described in some detail, and the best means of treatment are dealt with. These points are illustrated by the clinical records of a few cases.

(50) Recent Advances in Urinary Surgery.

J. W. Thomson Walker publishes a brief review of some of the more modern urological methods (*Practitioner*, May, 1915). The treatment of vesical papillomata by high frequency currents is sketched, and the technique in common use described. Passing reference is made to the various means employed for the relief of pain in inoperable vesical tuberculosis. The action of hexamine (hexamethylene tetramine or urotropin) is dealt with in some detail. This drug should be given in large doses, *e.g.*, 10 grains to 15 grains (0.66 to 1.0 gramme) in order that a sufficient liberation of formaldehyde may be effected. The urine must be rendered acid if necessary, by giving the acid sodium phosphate or benzoates. The urine should be tested for free formaldehyde in all cases. The value of the Rimini-Burnam test for this purpose is emphasized. In the next place, the author deals with the subject of moveable kidneys and the form of operation required for its cure. He gives an excellent resumé of a discussion on the after effects of these operations, which took place at the Royal Society. The article concludes with some references to prostatic hypertrophy, especially in regard to the eosinophilia which has been found to occur with remarkable constancy in cases of prostatic adenoma.

(51) Renal Cancer and Renal Stone.

John R. Coryell, of the Mayo Clinic, has investigated the association of renal cancer with renal calculi (*Bull. Johns Hopkins Hosp.*, April, 1915). His studies have led him to the recognition of a not infrequent regeneration of the tubular and pelvic renal epithelium, which may involve all the renal tubules. Constant and prolonged irritation may lead to hyperplastic or neoplastic formation. The renal new growth does not take place in the area actually irritated, but just beyond it. The author has come to the conclusion that chronic irritation in the kidney is a more determining factor in the production of cancer than heredity. There is at times an attempt on the part of the neoplasm to mimic the structure of the kidney. In all the specimens studied, some portion of the kidney showed an inflammatory reaction; the destruction of renal tissues varied in degree, and was brought about by interstitial or parenchymatous changes. Stone in the kidney may cause the epithelium of the tubules to necrose, to form cysts, or to become malignant. The changes from normal tissue to inflammatory, from inflammatory to hyperplastic, and from hyperplastic to neoplastic suggest that chronic irritation caused by the stone is the direct cause of the cancer. In all cases of renal cancer associated with renal calculus, large, light, fat-containing cells are found. These cells occur either singularly or in groups, and appear to originate in the tubules. Coryell states that over 64% of the cases of renal cancer at the Mayo Clinic were associated with stone.

(52) Ureteral Calculi.

J. T. Geraghty and F. Hinman (*Surg., Gynaec. and Obstet.*, May, 1915) deal with the special means of diagnosis of ureteral calculi, and some of the newer methods of intravesical treatment. They conclude that while radiography is the simplest, and probably the most valuable, single diagnostic method for the detection of ureteral stones, a surprisingly large percentage may remain undetected, even in expert hands. In their own cases radiography failed to demonstrate the calculi in 22.4%. Collargol ureterograms sometimes show a calculus which X-rays fail to reveal. The authors are of opinion that the wax-tipped catheter method is by far the most accurate for the detection of this condition. In six out of 35 cases of ureteral calculi seen during the last two years at the Johns Hopkins Hospital, Baltimore, the stone was localized by this means after repeated radiographical examination had yielded a negative result. This represents 20%. When the calculus is situated beyond the juxta-vesical portion of the ureter, displacement with the ureteral catheter and ureteral dilation at times effects the expulsion of the stone. Cystoscopical procedures are usually successful when the stone is in the vesical portion. From 14 to 17% of ureteral calculi are arrested in this situation, and for this reason cystoscopical treatment is of great importance.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch was held on June 25, 1915, at the B.M.A. Building, 30-34 Elizabeth Street, Sydney, Dr. Brady, in the absence of the President and the Vice-President, in the chair.

Dr. E. T. Thring read a paper on five recent cases of gall bladder surgery. The article will be found on page 95 of this issue.

On rising Dr. Sandes offered Dr. Thring a hearty welcome on his return from the front. He expressed the view that the paper dealt with one of the most important and interesting chapters in surgery, namely, the surgery of the gall bladder. He had been struck by the absence of text-book descriptions of biliary colic in Dr. Thring's cases. It was possible to detect gall bladder trouble long before the striking symptoms developed. In reference to the first case, he asked Dr. Thring whether pancreatitis was not common in cholecystitis. He held this opinion. He was doubtful whether Dr. Thring's preference for removal of the gall bladder was always wise. Should infection occur after excision the condition would be more serious than after incision and drainage. He held that the gall bladder was a useful organ, and that it was better to have one to fall back upon.

He made an amusing reference to Dr. Thring's tilt, as he expressed it, at bismuth meals. Turning to the question of technique, he asked Dr. Thring whether he preferred an incision parallel to the nerve supply or the Mayo Robson incision. The practice of probing the common duct to ascertain the seat of obstruction at the junction of the cystic and hepatic ducts should be limited. Under no circumstances did he consider it justifiable to dilate the duct low down so that the papilla of Vater were dilated. When this occurred the risk that infection might spread up Wirsung's duct, and give rise to pancreatitis was considerable. He referred to cases of biliary trouble in which the ducts were filled with a muddy substance largely composed of cholesterin.

Dr. W. J. Stewart McKay considered that Dr. Thring had not justified his practice of removing the gall-bladder. He would not suggest that Dr. Thring was wrong in carrying out this operation, but he maintained that it was almost impossible to prove that the cases had done better than they would have done had incision and drainage been employed. He believed that removal was not necessary in more than 15% of all cases. In old-standing cases, with marked thickening and fibrosis it was certainly correct practice to remove the gall-bladder. He cited a case to illustrate how rapidly a gall stone may form. Some time before he had opened a gall bladder of a woman for a hydatid cyst. The patient was not in the condition to tolerate the more severe operation of removal. Two years later she returned to him with a biliary fistula. As she was in a better condition he operated on her again, and removed the gall bladder, which contained calculi. There had been no trace of a calculus at the time of the first operation. He assumed that nature had put the gall-bladder in the abdomen for some purpose. Mayo held the opinion that it enabled the bile to accumulate in order that by washing back it could clear the biliary ducts. Turning to the question of technique, he pointed out that catgut caused a rush of bile in about two days, and that it was absorbed too rapidly. He favoured drainage.

In regard to the question of pancreatitis he cited a case in which the patient had an attack every six months. He had opened the abdomen in the belief that a stone would be found, but this was not the case. He was convinced that pancreatitis was much more common than was usually held. In regard to the question of drainage he called attention to the fact that as a rule the tube was shut off in about 12 hours. The practice of leaving it *in situ* for four or five days brought drainage into disrepute. He did not leave his drains in for more than 24 hours.

Dr. Binney congratulated Dr. Thring on his interesting cases. He enquired whether Dr. Thring used any means to dilate the common duct. This was frequently done, and he thought that it effected a good drainage of the gall bladder. He always felt satisfied when their was a free passage through the ducts. In regard to drainage, Rutherford Morrison used long tubes, and closed the wound completely as far as the tube. In regard to the question whether a gall-bladder should be excised, or whether a portion of it should be left behind, Dr. Binney stated that the condition found at the operation should guide the operator. If the bladder were empty of bile, and especially if it contained mucus, it was useless, and should be removed. At times a mucus fistula was met with, and it was clear to him that in these cases cholecystectomy should have been performed.

Turning to the question of bismuth meals, he thought that the ordinary means of diagnosis should be exhausted, and that commonsense should be employed in deciding the condition. In some cases it would thus be possible to spare the bismuth meal and X-ray examination. In a similar manner the ordinary fifth-year student should be able to diagnose a dilated œsophagus from the clinical picture without the use of X rays.

Dr. D. Kelly raised the question whether it was justifiable to remove gall-bladders in every case. He spoke of three cases occurring in his own practice in which the infective process had already spent itself at the time of the operation. In these cases he had removed the calculi through a small incision in the gall-bladder, and as the latter appeared to be quite healthy he had sutured the opening and dropped the organ back into the abdomen. When the common bile duct was much thickened, and especially when there was a stricture, anastomosis between the gall-bladder and the duodenum was often advisable. He felt that the surgeon would save a patient a great deal of trouble in the after history by leaving the gall-bladder in its normal situation.

Dr. Ayres took up the defence of the radiographer. He pointed out that the diagnosis of gall stones was often very difficult, both for the surgeon and for the physician. Jaundice was not always present, and a differentiation between gall stones and gastric or duodenal ulcer was often impossible without the aid of X-rays. X-rays were able to exclude both gastric and duodenal ulcer. Dr. Ayres quoted an instance in which an operation was performed after a diagnosis of gall stones had been made from physical examination with which the result of the X-ray examination did not tally. No ulcer was found, but calculi were present in the gall-bladder. It was at times difficult to distinguish between renal and biliary calculi. He maintained that a renal calculis was rarely missed now that radiography was used as a routine method of diagnosis. Dr. Ayres expressed the opinion that in future gall stones would be recognized more frequently than in the past, since their physical character had been more closely studied. Gall stones consisted of 80% of cholesterin. The amount of shadow thrown was due to the deposit of calcium in the periphery of the stone. It appeared in the form of a ring.

Dr. Bullock pointed out that Morrison frequently drained the gall bladder into the duodenum. He also recalled the fact that Berkeley Moynihan had given up excising gall bladders, although he had been much in favour of this procedure in the past. He then proceeded to recount his own experience of some difficult cases. In one patient he had found the gall bladder adherent in the transverse colon. The adhesion extended as far as the appendix. He had dealt with the adhesions, and drained the gall bladder. The patient got well. In another case the gall bladder was bound down at an angle to the liver. In a third patient symptoms pointing to gall stones had been present for twenty years. The colon was bound down to the liver by means of extensive adhesions, which involved the gall bladder. The latter structure was atrophic, and the common duct dilated to the size of about two fingers. A large number of calculi was removed, and the gall bladder closed and drained. He had had difficulty in arresting the hæmorrhage. The patient did quite well after drainage.

In his reply, Dr. Thring agreed with Drs. Sandes and McKay in regard to the frequency of pancreatitis. The diagnosis of this condition was often extremely difficult, or even impossible without operation. In regard to the question of X-rays, he said that he had heard a lot about the shadows thrown by biliary calculi, but he had never seen them. He had often wished that he could. He did not wish to be discouraging, and he admitted that he held a very high opinion of the diagnostic value of X-rays in con-

nexion with renal and ureteric calculi. In the next place he could not help remembering that fashions in medicine as in other walks of life, came and went. Arbuthnot Lane worked a fashion, but did so in the most honest manner possible. Dr. Thring thought that Lane's ideas were absolutely wrong, and he hoped that the fashion would soon die.

In reply to the question concerning the incision, he did not like making it parallel to the nerve supply, i.e., dividing the muscles transversely. He had never yet seen a hernia developed in any of his cases in which he had used a vertical incision. His practice was to open the common duct, and to examine the lower end without unduly dilating the duct. It was often necessary to explore the whole length with the finger. Each case should be judged on its own merits, and he did not feel justified in setting up a standard of treatment for all cases of chronic pancreatitis. He preferred not to open the common duct if this could be avoided. In regard to drainage, he had gradually reduced it in the course of years, and was now adopting an absolute minimum. He held that with the free use of normal saline solution and no drainage adhesions rarely formed.

In reply to Dr. Sandes, he stated that he did not excise the gall bladder in every case. At times it was very important to preserve it. On the other hand he was convinced that when there was danger of reinfection it was wiser to remove the gall bladder. He had only experienced trouble in one case after the removal. In this case the trouble developed 12 months later.

The following have been elected members of the New South Wales Branch:—

Dr. N. M. A. Alexander, Sydney Hospital.
Dr. Arthur V. Meehan, Sydney Hospital.
Dr. Charles K. Parkinson, Sydney Hospital.
Dr. Donald Ian Smith, Sydney Hospital.
Dr. Andrew Eric Aspinall, Sydney Hospital.
Dr. Keith Macarthur Brown, Sydney Hospital.
Dr. Cecil C. Coghlan, Sydney Hospital.
Dr. Frederick C. Curtis-Elliott, Sydney Hospital.
Dr. John Thomas Jones, Sydney Hospital.
Dr. Arthur Hubert Joyce, Sydney Hospital.
Dr. Robert Keith Rae, Sydney Hospital.
Dr. Stanley A. Railton, Sydney Hospital.
Dr. George Charles Willocks, Sydney Hospital.
Dr. Francis Justin McCarthy, Sydney Hospital.
Dr. Arnold W. Dean, Wentworth Road, Burwood.
Dr. John Roberts MacCulloch, 24 College Street, Sydney.
Dr. Thomas Thomson, Taralga.
Dr. Roy Arnold Lovejoy, Royal Alexandra Hospital.
Dr. Edith Weeks, Cremorne.

The following have been nominated for election to the New South Wales Branch:—

Dr. W. A. Bowie, Scarborough.
Dr. F. W. B. Greaves, Campsie.
Dr. Neville Griffiths, Balmain.
Dr. Jack Garland Skeet, Sydney.
Dr. W. J. McCristal, Burrenjuck.

The following has been elected a member of the South Australian Branch:—

Dr. Adolf Henry Coombs Dawes, Gawler.

BELGIAN'S DOCTORS' RELIEF FUND.

New South Wales.

During the fortnight ending July 27, 1915, only three subscriptions to the New South Wales fund for the Belgian doctors has been received.

	£	s.	d.
Amount previously acknowledged	630	5	6
Dr. Carruthers, C. U., Balmain	1	1	0
„ Gaden, Keith, Townsville	1	1	0
„ Moore, J. Brook, Bathurst	2	2	0
Total	634	9	6

Queensland.

The following subscriptions have been received by the Treasurer of the Queensland Branch during the week ending July 24, 1915. The amount has been handed to the Treasurer of the New South Wales Branch Fund, and will be transmitted to London with the moneys collected in New South Wales.

	£	s.	d.
Amount previously acknowledged	7	7	6
Dr. Crawford, J. H., Miles (July contribution)	1	1	6
„ Hemsley, J. C., Brisbane (July contribution	1	1	0
„ McKenna, T. R., Brisbane (June contribution)	1	0	0
„ Mathewson, T. H. R., Brisbane (May, June, July contributions)	3	3	0
„ Michod, F. A. H., Longreach (July contribution)	2	2	6
„ Priestley, H., Townsville (July contribution)	1	1	0
„ Rodger, D., Brisbane (July contribution)	2	2	0
„ Shaw, Helen, Toowong (July contribution)	0	10	0
„ Shaw, H. C. C., Brisbane (July contribution)	1	1	0
„ Spark, E. J. S., Brisbane (July contribution)	2	2	0
„ Willis, C. St. L., Innisfail (July contribution)	1	1	0
Total	23	12	6

Public Health.

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending July 17, 1915:—

Disease.	Number of Cases Reported.
Diphtheria	37
Varicella	32
Pulmonary Tuberculosis	12
Enteric Fever	5
Infantile Paralysis	3
Scarlatina	2
Puerperal Fever	2
Erysipelas	2
Cerebro-Spinal Meningitis	1
Total	96

THE HEALTH OF VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending July 22, 1915:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Totals. Cs.	Dths.
Diphtheria	52	2	40	0	92	2
Scarlatina	10	0	5	0	15	0
Enteric Fever	1	0	4	0	5	0
Pulmonary Tuberculosis	19	6	11	5	30	11

SMALL-POX IN NEW SOUTH WALES.

The following cases of small-pox have been reported to the Department of Public Health, New South Wales, during the week ending July 25, 1915:—

Country—

	Cases.
Plattsburg	1
Weston	1
Cessnock	1
Total	3

The following notice has appeared in the New South Wales Government *Gazette*, No. 132, under date of July 21, 1915:—

Office of Minister of Public Health,
Sydney, 13th July, 1915.

The Board of Health have reported that after due inquiry they are of opinion that it would be prejudicial

to health if certain land situated within the Municipality of Waverley, and described in the Schedule attached hereto, were built upon in its present condition.

The Board of Health have further reported that, in order to render such land fit to be built upon, it is necessary that—

(*a*) the whole of the garbage and refuse now or hereafter deposited on this land be removed and replaced by clean soil or sand;

(*b*) the surface of all that part of the land which is included within the walls of every building which may be built upon it (in case any weatherboard building is built upon such land, raised on piles or piers, the whole of surface occupied by such structure) be covered with a layer of concrete, composed of the following ingredients, namely:—One measure of cement of approved brand, three and a half measures of clean, sharp sand, free from loam or organic matter, six and a half measures of broken metal or gravel of 2½-inch gauge, laid 6 inches thick, properly spread and well rammed;

(*c*) all floors be laid on joists not less than 1 foot 6 inches above the concrete covering; the space thus formed to be ventilated by the insertion of air-bricks, each measuring 9 x 6 inches, to every 6 feet (lineal) of foundation;

(*d*) the space between piles or piers be left open, but protected by wire-netting of ½-inch mesh—

the whole of the work to be done to the satisfaction of the Board of Health: Now, therefore, in pursuance of the power and authority vested in me by section 55 (1) of the "Public Health Act, 1902," I hereby declare that such land shall not be built upon until the measures above referred to, which are also specified in a document deposited in the Office of the Local Authority (the Council of the Municipality of Waverley), and open to the inspection of any person, have been complied with, or until this notice has been revoked by me.

GEORGE BLACK,
Minister of Public Health.

DENTAL TREATMENT FOR SCHOOL CHILDREN.

Mr. Giblin, M.L.A., moved on July 22, 1915, in the Tasmanian House of Assembly—

> That, in the opinion of this House, Ministers should take immediate action to provide for the dental treatment of school children.

He pointed out in the course of an excellent speech, the importance of sound teeth to the health of the individual, and called attention to the number of men who were unfit for military service on account of bad teeth. He urged that the example of New South Wales and Queensland should be followed, and skilled treatment in the early stages of dental caries should be provided. He asked for the appointment of two young dentists. The motion was well received, and the Treasurer explained that the only difficulty which had to be overcome was one of the expense. He felt that the expense of appointing two half-time dental officers would be justified. The passage of the motion would strengthen the hands of the Minister to make a beginning. After a short discussion, the motion was carried.

THE WATER SUPPLY OF MELBOURNE.

The Secretary of the Melbourne and Metropolitan Board of Works has issued in book form an account of the water supply systems controlled by his Board. The various systems are described in some detail in the letterpress, and this description is amplified by a large series of some excellent photographs, by sections, tables and a map. The work is a valuable record of the undertakings of the Melbourne Board up to the present date, and contains all the information essential for a clear understanding of the three systems.

From an historical point of view, it appears that in 1835 water was obtained from the River Yarra, near the Queen's Bridge. A ledge of rock extending across the bed of the river did not prevent the salt water from Hobson's Bay from contaminating the river water at high tide. An unsuccessful attempt was made to overcome the difficulty. At this time water was sold by private companies in barrels at prices varying from 2s. to 10s. per barrel. Shortly after the formation of the Melbourne City Council, in 1842, a scheme for the erection of a large filter was evolved, and in 1849 the selection of the Yan Yean site was made. From this time onwards the present system was gradually evolved. In 1857 the various local river systems were abandoned for the permanent supply.

The Yan Yean System.

The waters flowing from various creeks and springs at Mount Disappointment unite to form the Plenty River. This supply was recognized in 1850 as a constant and perpetual one. In 1857 a reservoir was commenced. The chief work was the construction of a long embankment, forming a lake of about 1,360 acres in area. The lake has a maximum depth of 26 feet, and a capacity of 6,400,000,000 gallons, of which 5,400,000,000 gallons are available for consumption. This lake was fed by a catchment area of some 5,700 acres, and also from the Plenty River, through an aqueduct two miles long. Flood gates were provided at the river end of the aqueduct, to regulate the flow of water or to arrest it altogether. The main from Yan Yean to Melbourne was originally of three diameters. This main ended in a cast-iron tank, which was removed from Princes Bridge to Werribee in 1892. In 1864 the Preston Reservoir was built. The capacity of this reservoir was 16,000,000 gallons, and the maximum depth 20 feet. In 1874 a new main, 18 inches in diameter, was constructed from Preston to the city. Later the main from Yan Yean to Morang was enlarged, in order that it could deliver 33,000,000 gallons a day. This aqueduct ended in a small reservoir of 3,000,000 gallons capacity. Further improvements were made in connexion with the various mains. Many difficulties had to be overcome, and several service reservoirs were required in the suburban districts, in order to augment the supply during the hot, dry weather, when the consumption of water was greatly increased. In 1883, the waters of the Wallaby Creek were diverted into the Plenty River, through an aqueduct some 5½ miles in length. On this additional supply being secured, the water from Bruce's Creek was dispensed with, since this supply had been polluted by a large amount of settlement in the area of the watershed. The quality of the water was further improved by the exclusion of the waters from the western branches of the Plenty River and Scrubby Creek. In order to effect this, the Toorourring Reservoir was constructed, and a new aqueduct from it to Yan Yean. These deflections resulted in the whole of the water supply of Melbourne in 1885 being derived from uncultivated and unoccupied land (with the exception of one small farm). This holding was purchased in 1896, and thrown out of agricultural use.

The Toorourrong Reservoir had a capacity of 60,000,000 gallons, and an area of 36 acres. In 1886, the Yan Yean Reservoir received the waters of Silver Creek by the construction of the Silver Creek Aqueduct, which has a carrying capacity of 12,000,000 gallons a day. The constant flow of the cool mountain water into the Yan Yean lake imparts to the supply its refreshing quality, and by inhibiting the growth of conferæ, renders it peculiarly pure. In 1886, two further improvements were effected. The Kew Reservoir, with a capacity of 3,000,000 gallons, was erected, and the lining of the mains with asphaltum was adopted to prevent chemical action. At the present time there are over 30 miles of aqueducts in connexion with the Yan Yean system, and the watershed area is approximately 29,000 acres.

The Maroondah System.

In 1879 it was determined that a survey of the Watts River and its tributaries should be made, with the view of ascertaining whether it would be practicable to derive part of the Melbourne water supply from this source. It was found that the daily flow of the river was 42,000,000 gallons. It was proposed that a dam be built across the valley. In this way some 2,000,000,000 gallons of water could be stored. The name of the river and system was changed to Maroon-

dah. An aqueduct some 41 miles in length, including 25½ open contour channel, was built. In the course of the aqueduct there are 12 tunnels, with an aggregate length of 6¼ miles, and 14 inverted syphons. The aqueduct is capable of carrying 50,000,000 gallons of water daily. The Maroondah Aqueduct discharges into the Preston Reservoir. The supply from this side was increased by the building of a weir on the Graceburn. The greater part of the watershed is situated on the southern slope of the Great Dividing Range, and extends over an area of 40,000 acres, including the Coranderrk Creek. All the alienated land in the watershed has been purchased, and it is now free from human inhabitation and from horses, cattle, sheep, goats and dogs. The increase in the number of inhabitants necessitated increases in the daily water supply, and this was in part effected by the diversion of Donnelly's Creek in 1893, and by the duplication of the syphon system in 1907. The daily flow through the aqueducts was thus increased to 29,000,000 gallons.

O'Shannassy and Upper Yarra System.

The third system was the result of an exhaustive enquiry undertaken by a Royal Commission appointed to consider the relative merits of the Maroondah and O'Shannassy River schemes. It was reported in 1909 that the completion of the Maroondah lake reservoir, with a capacity of 2,400,000,000 gallons would supply 110,000 persons with water at a cost of £3 16s. per person, the O'Shannassy scheme would provide an additional 250,000 persons with water at £1 16s. per person. The Commission came to the conclusion that the latter scheme would provide for a greater increase of population than the former. The quality of the water was declared to be excellent, and the fact that the water could be delivered at an altitude which commands the highest parts of the metropolis was regarded as a very strong point in favour of the O'Shannassy scheme. The work was commenced in 1910, and in October, 1914, the system was completed, and 20,000,000 gallons were supplied daily. The system consists in a weir on the O'Shannassy River, about 3¾ miles above its confluence with the Yarra. From this point an aqueduct, some 48¾ miles in length, carries water into a service reservoir at Surrey Hills. This reservoir is connected with an older reservoir, and lies at the same height. The capacity of the two reservoirs is 24,000,000 gallons. The aqueduct consists of 23 miles of open or covered channel, 22¾ miles of steel pipe, and three tunnels, as well as reinforced concrete pipes and wood stave pipes.

At a later date, it will be possible to utilize the watershed of the Upper Yarra to the extent of 115,000 acres. Other additional works have been constructed at various times, and though comparatively small in themselves, they form an important part in the metropolitan water supply.

Water Pressure in the Mains.

The manner in which the water supply schemes have been constructed places the metropolis of Victoria in a favourable position, both in regard to the pressure and of purity. The average pressure is computed to be not less than 60 lbs. per square inch, while in the heart of the city it does not sink below 70 lbs. per square inch, even in very hot weather.

Quality of the Water.

According to the Analytical Chemist to the Board, the water supplied to Melbourne is of exceptional purity, both from a chemical and from a bacteriological point of view. It contains less than 2½ grains of inorganic solids per gallon, *i.e.*, about 1 gramme in 30½ litres. The water is soft, only small quantities of calcium, magnesium and iron being present.

Cost of Installation and Capacity.

The cost of construction of the Yan Yean, Maroondah and O'Shannassy systems, of the service reservoirs, mains, reticulation, etc., amounts to £4,614,728. The total capacity of the storage is 6,460,000,000 gallons, and of the service reservoirs 131,300,000 gallons. The maximum daily consumption was 74,579,000 gallons, while the total consumption for the year 1914 was 14,884,278,000 gallons. This works out at 62.64 gallons of water to each inhabitant each day. The water rate at present is fixed at 6d. per £ (municipal assessment), and the charge of 1s. per 1,000 gallons is levied. The working expenses in 1914 represented 17.08% of the revenue.

THE LATE DR. MATHISON.

Through the kindness and courtesy of the Editor of the *British Medical Journal* we are enabled to publish the following abstract from the obituary notice on Dr. G. C. M. Mathison, which has appeared in a recent issue of the Journal. The notice stands above the initials E. H. S., which University College men will have no difficulty in associating with the Professor of Physiology. The notice begins with an appreciation of Dr. Mathison's professional and social qualities. In regard to his investigations the writer continues as follows:—

The most important of these are those dealing with the effects of asphyxia. In his first paper on the effects of asphyxia in the spinal animal Mathison analysed the part played by oxygen deficiency, and carbonic acid excess respectively. In the papers on the effects of asphyxia on the spinal animal and upon the medullary centres, Mathison succeeded in clearing up the part played in the phenomena of asphyxia by these two factors. He showed that either of them or the introduction of weak organic acids into the blood stream, caused a general excitation both of the medullary and spinal centres, and that the threshold of sensibility of the medullary centres was about five times as low as that for the spinal centres. His results made it almost certain that a common factor, namely, the increased hydrogen ion content of the blood, underlay the action of these different factors upon the nerve centres. Observations on the condition of the heart during these experiments led him to investigate, partly alone, partly with T. Lewis, the causation of the slowing of the heart which may occur during asphyxia. He showed that, apart from vagus excitation, the deficiency of oxygen caused heart-block to occur in consequence of its depressant action upon the auriculo-ventricular connexions. The effects of asphyxia on the circulation led him naturally to the consideration of the conditions of tissue oxidation when there is increased need or diminished supply of oxygen. With the help of Barcroft he therefore investigated the effect of the conditions which occur in asphyxia, namely, increased tension of carbonic acid and increased hydrogen ion concentration of the blood, on the rate at which oxyhæmoglobin gives off its oxygen. He showed that the concentrations of carbon dioxide or lactic acid, such as occur in the tissues during deficient oxygenation, may double the rate at which the arterial blood gives up its oxygen at low oxygen tensions, so that the presence of these acid substances may be an important factor in tissue respiration.

Mathison also investigated the influence of another constituent of the blood which has long been known to have considerable influence upon the circulation—namely, potassium salts. He showed that the primary fall of blood pressure due to the injection of these salts into the circulation is brought about, as has long been thought, by their action on the heart, which undergoes dilatation, slowing, or complete arrest in diastole, sometimes preceded by partial or complete heart-block. On the blood vessels, however, as well as on the vasomotor centres of medulla and cord, potassium salts have an excitatory effect, so that the intra-arterial injection of a few c.cm. of potassium chloride solution may cause a rise of blood pressure from 100 to 250 mm. Hg., a rise which is obtained even after section or complete destruction of the spinal cord.

One other paper is worthy of mention, although its results were chiefly negative. Sherrington had brought to light the part played in the regulation of the muscular movements by afferent impulses from the muscles themselves. The question arose whether the respiratory movements were in the same way guided by afferent impressions from the diaphragm ascending the phrenic nerves. Mathison found that although many reflex effects could be obtained by stimulation of the central end of the phrenics, showing the existence of afferent fibres in these nerves, these effects differed in no way from those obtained by exciting any other afferent nerve. In no case was any expiratory reflex

evoked, so that he came to the conclusion that sensory impulses passing up the phrenic nerve play little or no part in the normal regulation of respiratory movements. In this regulation the afferent impulses passing up the vagus from the lung play the same part as muscle sense impressions do in the regulation of ordinary muscular movements.

Throughout the whole of his work in England Mathison was preparing himself for his future work as a physician, with the intention of applying the technique and knowledge so gained in the investigation of disease in man.

Few if any men in English-speaking countries with opportunities of clinical investigation have come to the task so well equipped by disposition, knowledge, and technical training, as Mathison. His death has occurred at the very outset of his career. His work in physiology served only to show the quality of that which we were expecting to get from him in the province of medicine. E.H.S.

Naval and Military News.

We regret to record that the name of Lieutenant-Colonel Neville R. Howse, V.C., F.R.C.S., of Orange, New South Wales, is included in the 56th list of casualties under the heading "ill," and that in the same list the names of Captain Vivian Benjafield, M.B., Ch.M., of North Sydney, and of Captain Edward Maxwell Ramsden, M.B., of Hornsby, New South Wales, also appears.

In the casualty list of officers reported from General Headquarters in England on June 18, 1915, the following are those affecting members of the medical profession:—

Died of wounds: Lieutenant David G. Watson, R.A.M.C., M.B., Ch.M., of Edin., previously reported wounded (see *The Medical Journal of Australia*, July 17, 1915, p. 57), Surgeon T. L. G. Stewart, R.N., M.B., Ch.B., of Liverpool.

Wounded: Major G. H. L. Hamerton, R.A.M.C., D.S.O., M.R.C.S., L.R.C.P., F.Z.S., of Leeds; Surgeon William Bradbury, R.N., M.B., Ch.B., B.A.O.R.U.I.; Surgeon Rolf Creasy, R.N., M.R.C.S., L.R.C.P., of Windlesham; Captain R. Knowles, I.M.C.

The following appointments to the staff of the No. 4 General Hospital at Randwick, have been confirmed on July 22, 1915:—

Lieutenant-Colonel G. Lane Mullins, A.A.M.C., Officer in Command; Lieutenant-Colonel Sir Herbert Maitland, surgeon; Lieutenant-Colonel Jarvie Hood, physician; Major J. Crawford Robertson, registrar; Major R. B. Wade, surgeon; Major M. O'Gorman Hughes, surgeon; Major E. W. Fairfax, physician; Major P. J. Collins, physician; Honorary Major H. R. Sear, radiologist; Honorary Major J. C. Halliday, ophthalmic surgeon, and Captain G. Norrie, resident medical officer.

The following appointments have been gazetted on July 14, 1915, and published in the District Orders No. 70 (Military District No. 2) under date of July 23, 1915:—

To be Captains—

Captain (temporary) T. A. Grieves, A.A.M.C.
Captain (temporary) A. R. Heupt, A.A.M.C.
Captain (temporary) W. Evans, A.A.M.C.
Captain (temporary) A. J. MacDonald, A.A.M.C.
Arthur John Mollison.
Stuart Millard Graham.
Charles Herbert Wesley.
Noel Edmund Barton Kirkwood.
Charles Kingsley Parkinson.
Ernest Kent Parry.
Claude John Tozer.
John Lang Niven.
Stephen Bruce Burge.

It is officially announced that the Minister for Defence has approved of the exemption from military training of 4th and 5th year medical students who are preparing to complete their university courses at an earlier date than usual. The military training referred to is required under Part XII. of the Defence Act, and the exemption will take effect from July 1, 1915, to the date of their final examination. It is understood that the exempted students are applying for appointments in the Australian Army Medical Corps.

We have been asked to call the attention of medical practitioners to a cable which has been received from the High Commissioner. According to this message, medical practitioners desirous of obtaining commissions in the Royal Army Medical Corps will be required to have their applications endorsed by the Department of Defence in Melbourne. It is further pointed out that married and senior men are advised not to apply for commissions in the R.A.M.C., but should join an Australian unit.

THE AUSTRALIAN ARMY MEDICAL CORPS.

The following is a complete list of medical officers of the A.A.M.C. on service, revised to February 3, 1915. The names of men who have joined subsequently will be published as soon as the official list is available:—

FIRST AUSTRALIAN DIVISION.

Army Medical Corps.

Division.

First Field Ambulance (N.S.W.).

Officer Commanding—
Newmarch, Lieut.-Colonel B. J., V.D.
Majors (2)—
Millard, Major R. J.
Stokes, Major E. S.
Captains (6)—
Welch, Captain J. B. St. V.
Aspinall, Captain A. J.
Dunlop, Captain (prov.) L. W.
Poate, Captain H. R. G.
Wassell, Captain C. E.
Kay, Captain W. E.

Second Field Ambulance (Vic.).

Officer Commanding—
Sturdee, Lieut.-Colonel A. H., V.D.
Majors (2)—
Hearne, Major W. W.
Shaw, Major C. G.
Captains (6)—
Hurley, Captain T. E. V.
Quick, Captain B.
Chambers, Captain R. W.
Williams, Captain (prov.) H. J.
Honman, Captain (prov.) A. V.

Third Field Ambulance (Q'land, S.A., W.A., Tas.).

Officer Commanding—
Sutton, Lieut.-Colonel A.
Majors (2)—
Butler, Major H. N.
Dixon, Major G. P.
Captains (6)—
Buchanan, Captain A. L.
McWhae, Captain D. M.
Fry, Captain (prov.) H. K.
Conrick, Captain (prov.) H. V. P.
Goldsmith, Captain (prov.) F.
Ingram, Captain (prov.) B.
Unallotted—
Moodie, Captain C. G. G.

Medical Officers of Units.

*Div. Staff—Ryan, Colonel C. S., V.D.
Div. Staff—Marshall, Lt.-Col. G. A., V.D.
4th L.H.—MacKnight, Major C. C.
1st F.A. Bde.—Howse, Captain A. O.
2nd F.A. Bde.—Whitford, Captain R. S.
3rd F.A. Bde.—Marks, Captain A. H.
Div. Ammn. Col.—Purdy, Major J. S.
Div. Engs.—Lewers, Captain H. B.
1st Btn.—Thompson, Captain C. W.
2nd Btn.—Tebbutt, Captain A. H.
3rd Btn.—Kane, Captain F. W.

* Transferred for duty to Head-Quarters, Australian and New Zealand Army Corps, from 28th December, 1914.

4th Btn.—Bean, Captain J. W. B.
5th Btn.—Lind, Captain (prov.) E. F.
6th Btn.—Black, Captain J. J.
7th Btn.—Gutheridge, Captain (prov.) E. W.
8th Btn.—Jackson, Captain (prov.) H. E. A.
9th Btn.—Butler, Captain A. G.
10th Btn.—Nott, Captain (prov.) H. C.
11th Btn.—Brennan, Captain E. T.
12th Btn.—Ratten, Captain V. R.
Div. Train—Jolley, Captain A. F.

FIRST LIGHT HORSE BRIGADE.

First Light Horse Field Ambulance (N.S.W., Vic.).

Officer Commanding—
Sutherland, Lieut.-Colonel R. T.
Major—
Helsham, Major W. M.
Captains—
Fowler, Captain R.
Fiaschi, Captain (prov.) P.
Ramsden, Captain E. M.
Nicholas, Captain J. J.

Medical Officers of Units.

1st Regt.—Fullerton, Captain A. Y.
2nd Regt.—Macartney, Captain G. W.
3rd Regt.—Mainwaring, Captain (prov.) W. R. C.

SECOND LIGHT HORSE BRIGADE TRAIN.

Second Light Horse Field Ambulance (Q'land).

Officer Commanding—
Bean, Lieut.-Colonel H. K.
Major—
Croll, Major D. G.
Captains—
Fraser, Captain W. A.
MacDonnell, Captain L. G. A.
Pitcher, Captain C. F.
Buchanan, Captain J. D.

Medical Officers of Units.

5th Regt.—Dods, Captain J. E.
6th Regt.—Verge, Captain A.
7th Regt.—Flecker, Captain H.

THIRD LIGHT HORSE BRIGADE.

Third Light Horse Field Ambulance (Vic.).

Officer Commanding—
Downes, Lieut.-Colonel R. M.
Major—
White, Captain E. R.
Captains—
Anderson, Captain J. H.
Cave, Captain M. W.
Stuart, Captain G. E. M.
Aberdeen, Captain K. G. McK.

Medical Officers of Units.

8th Regt.—Campbell, Captain S. J.
9th Regt.—Betts, Captain L. O.
10th Regt.—Bentley, Captain J.

FOUR INFANTRY BRIGADE TRAIN.

Fourth Field Ambulance (Vic., S.A., W.A.).

Officer Commanding—
Beeston, Lieut.-Colonel Hon. J. L., V.D.
Majors (2)—
Jermyn, Major F. D., V.D.
Stewart, Major J. E. F.
Captains (6)—
Meikle, Captain A. J.
Dawson, Captain A. L.
Kenny, Captain J. P.
Welch, Captain H. L. St. V.
Jeffries, Captain L. W.
Finn, Captain C. N.

Medical Officers of Units.

13th Btn.—Shellshear, Captain C.
14th Btn.—Loughran, Captain H. G.
15th Btn.—Luther, Captain J. F. G.
16th Btn.—McGregor, Captain R. S.

LINES OF COMMUNICATION UNITS.

Army Medical Corps.

First Australian General Hospital (Q'land).

Officer Commanding—
Smith, Lieut.-Colonel W. R.
Lieutenant-Colonels—
Syme, Lieut.-Colonel G. A.
Maudsley, Lieut.-Colonel H. C.
Majors—
Macdonald, Major R.
Dunhill, Major T. P.
Summons, Major W. E.
Barrett, Major J. W.
Jackson, Major E. S.
McLean, Major J. B.
Argyle, Major S. S.
Captains—
Follitt, Captain H. H. B.
Sutherland, Captain B. M.
Kay, Captain S.
Johnson, Captain M. B.
Foxton, Captain H. V.
Alchorn, Captain A.
Turnbull, Captain H. H. D.
Tait, Captain J. T.
Watson, Captain R. F.
Plant, Captain H. F. H.
Morlet, Captain C.

Second Australian General Hospital (N.S.W.).

Officer Commanding—
Martin, Lieut.-Colonel T. M.
Lieutenant-Colonels—
Nash, Lieut.-Colonel J. B., V.D.
Springthorpe, Lieut.-Colonel J. W.
Majors—
Read, Major W. H.
Grey, Major W. C.
Campbell, Major A. W.
Carter, Major G. B.
Stewart, Major J. M. Y.
Captains—
Storey, Captain J. C.
Clayton, Captain H. J.
Reiach, Captain J.
Kennedy, Captain B. C.
McLaren, Captain W. W.
Embelton, Captain D. M.
Benjafield, Captain V.
Fletcher, Captain W. M. A.
Mackenzie, Captain D. S.
Barton, Captain A. S. D.
Ross, Captain C. C.

First Australian Stationary Hospital (S.A.).

Officer Commanding—
Bryant, Lieut.-Colonel H. W., V.D.
Majors—
Powell, Major H. A.
Watson, Major A. (attached)
Wilson, Major T. G.
Newland, Major H. S.
Captains—
LeMessurier, Captain F. N.
Verco, Captain J. S.
Corbin, Captain (Hon. Major) J.

Second Australian Stationary Hospital (W.A.).

Officer Commanding—
White, Lieut.-Colonel A. T., V.D.
Majors—
Barber, Major G. W.
Zwar, Major B. T.
Captains—
Haynes, Captain A. R.
Stacy, Captain V. O.
Deakin, Captain E. J. F.
Sawers, Captain W. C.

First Australian Clearing Hospital (Tas.).

Officer Commanding—
Giblin, Lieut.-Colonel W. W.
Majors—
Richards, Major S. J.
Gordon, Major J.
Captains—
O'Brien, Captain J. A.
Campbell, Captain R. D.
Atkins, Captain C. N.
Mattei, Captain C.

ARMY MEDICAL CORPS—REINFORCEMENTS.

Single, Captain C. V.
Furber, Captain T. M.
Beith, Captain J. R. M.
Bond, Captain L. W.
McIntyre, Captain F.
Levi, Captain K. M.
Muirhead, Captain J. R.
Yuille, Captain M.
Wells, Captain J. C.
Evans, Captain T. C. C.
Beamish, Captain F. T.
Brown, Captain T. F.

Convalescent Depôt, London.

Southey, Captain M. V.

Special Correspondence.

(By Our Montreal Correspondent.)

CANADA LETTER.

Canada's Contribution in Hospitals.

The medical men of Canada have made a willing response to the exigencies of the present crisis. Over four hundred Canadian doctors are now on active service, and volunteers are recruited from day to day. The recent appeal of the War Office for one hundred men to serve with the Royal Army Medical Corps met with a swift response, and a number of those who volunteered are already in England. A splendid example was set by McGill University, Montreal, early in October, when an offer was made by the Faculty of Medicine to supply the entire personnel and equipment of a general hospital on the lines of communication. The offer was accepted by the War Office in December, and the work of organization was commenced at once, under the direction of Dr. H. S. Birkett, the Dean of the Medical Faculty. Dean (since gazetted Lieutenant-Colonel) Birkett was unanimously chosen commanding officer, and the other officers were chosen from members of the teaching staff of the University and those holding positions in hospitals connected with the University. It was important that both officers and nurses should be able to speak French as well as English. The nurses were chosen from graduates of the Montreal General and Royal Victoria Hospitals, and the rank and file, as far as possible, from medical students in the University. The personnel of the unit was increased in February to the number of 308, and the accommodation to 1,040 beds. The following is the list of officers who accompanied the unit: Lieutenant-Colonel Birkett (in command), Drs. J. M. Elder, John McCrae, H. B. Yates, W. H. P. Hill, E. W. Archibald, A. H. Pirie, L. J. Rhea, W. G. Turner, C. P. Howard, H. M. Little, W. B. Howell, C. K. Russel, Wm. Hutchinson, J. C. Meakins, W. W. Francis, J. A. McMillan, R. H. Malone, L. R. McKim, H. C. Burgess, J. G. Browne, H. C. Dixon, W. T. Ewing, D. A. Hingston, R. St. J. MacDonald, W. Wilkins, J. C. Wickham, L. H. Thornton (dentist), L. L. Reford, and Mr. Revere Osler (son of Sir William Osler). Dr. J. G. Adami intended to accompany the hospital as registrar. However, he was appointed to represent Canada on the committee entrusted with the compilation of a medical history of the British Expeditionary Forces engaged in the present war, and his place was taken by Dr. John L. Todd. Dr. Adami has been gazetted temporary lieutenant-colonel.

A special Convocation was held on April 22, shortly before the end of the session, in order that degrees might be conferred upon students who were to accompany the hospital, which is known as No. 3 General Hospital. The occasion was marked by the presence of Their Royal Highnesses the Duke and Duchess of Connaught and the Princess Patricia, and the Convocation was immediately preceded by an inspection of the unit. Sir William Osler has offered his services as supernumerary if the hospital should be called upon to deal with an outbreak of enteric fever.

McGill's example was soon followed by other universities. The University of Toronto made a similar offer, which was accepted, with the result that No. 4 General Hospital was organized, much in the same way as the McGill unit. No. 4 General Hospital is in command of Colonel J. A. Roberts; it has 1,040 beds, and the staff is composed of one colonel, four lieutenant-colonels, eight majors, twenty-six captains, two quartermasters, four warrant officers, two matrons, eighty-four nursing sisters, and two hundred and eighty-four rank and file. The officers are Colonel J. A. Roberts (in command), Major W. B. Hendry (second in command), and Captain N. J. L. Yellowless. Surgical Staff: Drs. Alex. Primrose, Walter McKeown, J. Malloch, B. P. Watson, E. S. Ryerson, G. E. Wilson, R. Gaby, F. W. Watts, J. G. Gallie and H. Wookey. Medical Staff: Drs. Andrew Gordon, Graham Chambers, C. S. McVicar (secretary-registrar), Donald McGillivray, Harold Parsons, D. K. Smith, Geo. F. Boyer, R. G. Armour, J. H. McPhedran, and S. R. D. Hewitt. Other officers are Drs. Gilbert Royce, W. E. Lowrie, R. Pearse, J. A. Amyot, Duncan Graham, N. C. Sharpe, A. A. Fletcher, C. J. Imrie and Geo. Gow (dentist).

Queen's University, Kingston, Ontario, has supplied a 200 bed stationary hospital (No. 5), which is under the command of Lieutenant-Colonel Etherington. The officers of this unit are, in addition to Lieutenant-Colonel Etherington, Lieutenant-Colonel W. G. Anglin, Major W. T. Connell, Major G. E. Kidd, Captains Garfield Platt, J. P. Quigley, William Ballantyne, S. M. Polson, Ernest Sparks (dentist), and Hon. Captain Jas. Wallace (quartermaster).

The nursing sisters who accompanied these hospitals have been gazetted *lieutenant*, and the doctors *captain*. With the exception of the University of Toronto military hospital, the equipment for these units has been provided by voluntary subscription. Contributions to the amount $60,000 were made to the McGill Hospital, in addition to four motor ambulances and other expensive gifts. In the case of the University of Toronto Hospital, the equipment required by the military regulations was provided by the Provincial Government, but additional equipment and that provided for the laboratories which accompanied the unit, was purchased with money subscribed for the purpose. Mr. E. A. Hardy, of Brockville, Ontario, gave $40,000 towards the maintenance of the unit while on active service. Generous contributions were also made to Queen's Military Hospital, and it is proposed to send $300 a month towards the maintenance of the unit while overseas.

No. 2 Clearing Hospital has also been mobilized at Toronto, under the direction of Lieutenant-Colonel G. S. Rennie. On its arrival in England, this unit, with a final complement of seventy-seven men, was placed under the command of Lieutenant-Colonel A. Wallace Scott, who left with the first contingent C.E.F. No. 4 French-Canadian Stationary Hospital was mobilized at Montreal, and is in command of Lieutenant-Colonel Arthur Mignault. The announcement of the safe arrival in England of all these units was received with relief, as they sailed a few days after the ill-fated *Lusitania* left New York.

From all parts of the country offers of hospital units have been made to the Government. It appears that at the moment individual doctors to serve with the R.A.M.C. are needed more than hospitals and some of the offers made have been refused for the time being. The University of Alberta, the University of Manitoba, the Western University, London, Ontario, Laval University, Montreal, and Dalhousie University, Halifax, Nova Scotia, have all expressed their willingness to supply a hospital for service overseas. The Laval offer has been accepted, provided the University authorities can supply a hospital of 1,040 beds. In many cases the reply has not yet been received. The physicians of Vancouver have offered to supply a military base hospital of 1,040 beds, the province of Saskatchewan has offered

a hospital until, the city of Hamilton, Ontario, has offered another unit, the city of Peterborough, Ontario, has offered to supply a hospital for service in any part of Europe, including Serbia, and to maintain the unit while on active service. This has been accepted by the War Office. The Lambton County Medical Association, Ontario, is prepared to supply a hospital unit of 200 beds should it be required. In addition, the Ontario Government is to establish and maintain in England a hospital of 1,000 beds for the treatment of Canadian soldiers. It is probable that this hospital will be composed of ten cottages, each containing accommodation for one hundred patients. The Ontario Government has also given six motor ambulances, which will be sent to France at once.

Correspondence.

OPERATION FOR VARICOCELE AS A MILITARY REQUIREMENT.

Sir,—I think it would be interesting and instructive to know what the opinion of the profession is, in these present days, of the operation for varicocele. Sir James Paget, in his admirable essays, gave a just and honest presentment of the nature of the abnormality and its bearing in civil practice. I think, indeed, that in summing up the innocuousness of the condition, in the large majority of cases, he admitted that it might be a bar to active military service, and with his views I see no reason to differ. But I ask is this condition frequently so severe as to be a bar to military service and to require an operation for its cure before acceptance as a combatant. I venture to think not. In the large majority of cases, the amount of trouble is, in truth, negligible. A healthy young man does not study his genital organs with metriculous attention, and if he exercises a wholesome forgetfulness of his genitalia, he feels and suffers no inconvenience. It seems, Sir, to me, that our military authorities carry on an old world kind of fetish in insisting that ordinary varicocele is a bar to active service. I do not assert that no varicocele needs surgical relief; far from it. I see, every now and again, one which, from its size and weight, produces physical discomfort and disability, or from introspection and reading pornographic literature, produces mental unhappiness. What I feel strongly is that just now many persons are being subjected to the operation who, in no sense, require it, either for military reasons or because they are dwelling sadly on the probability of future impotence. During the past twelve months the operation for varicocele has been performed at St. Vincent's Hospital fifty times, almost always for military reasons. Of these surgical crimes I regret to say that I have committed eleven, and in not one of these cases, in civil practice, and normal times, would I have advised the operation.

Surely we are overdoing surgical interference in this class of case.

Yours, etc.,
R. SCOT SKIRVING.

Sydney, July 21, 1915.

PAIN IN APPENDICITIS.

Sir,—I beg to direct attention to the explanation offered by Dr. A. S. Vallack of the referred pain in appendicitis. Dr. Vallack's views are not in accord with the facts ascertained in regard to the nervous supply of the viscera and the conduction of nervous impulses from one nervous unit to another. I cannot do better than quote the remarks in Starling's "Principles of Human Physiology," 1915:—

> The supply of afferent fibres to the viscera is very small in proportion to the supply to the outer surface of the body. According to Langley, in a visceral nerve such as the hypogastric, only about one-tenth of the medullated fibres are afferent, and the proportion of afferent fibres in the sphlanchnic nerves is not very different from this. . . . . It is probable that the afferent fibres of the viscera arise, like those of the somatic system, from ganglion cells of the posterior spinal ganglia. Every white ramus contains afferent fibres, stimulation of which may evoke a rise of blood-pressure, as well as movements of the skeletal muscles. In spite of the supply of afferent fibres to the viscera, most of these organs are very insensitive to ordinary stimulation, such as handling or cutting. In operations on man for resection of the gut, if the abdominal cavity be opened under local or general anæsthesia, cutting and suturing may be conducted without any anæsthetic and without any pain to the patient. On the other hand, impulses may arise in the afferent nerve endings of the viscera as a result of disease or certain forms of stimulation, *e.g.*, stretching or compression, which may reach consciousness and give rise to sensations of pain. The pain is not localized in the viscera, but is referred to certain parts of the surface of the body. When the afferent autonomic fibres of a nerve are the seat of pain, the primary referred pain is in the area of the cutaneous somatic fibres of the nerve.

These facts suggest that the impulses generated in autonomic afferent and cutaneous fibres must be conducted through the central nervous system to the same kinæsthetic area of the cerebral cortex, where the physiological nervous impulse becomes associated with the psychological perception of pain. Only in this way can we account for the erroneous localization of the origin of the impulse.

In regard to Dr. Vallack's explanation, might I trespass further on your space to point out that the supposition that the stimulation of the terminations of the post-ganglionic fibres is conducted back to the cord involves a breach of the law of forward direction of nervous impulses. While a nervous impulse is propagated over the whole unit in which it is generated, it is only transmitted to contiguous neurones in one direction. A nervous impulse is conducted from a pre-ganglionic fibre to the post-ganglionic fibres with which it is in contact, but a nervous impulse is not transmitted from a post-ganglionic to a pre-ganglionic unit.

Yours, etc.,
HENRY G. CHAPMAN.

University of Sydney,
July 23, 1915.

Personal.

The death of Dr. Hugh Kirkland, of Lithgow, New South Wales, took place at his residence on July 23, 1915. We hope to publish a memoir in a future issue.

Dr. R. H. Fetherston has been granted leave of absence for the duration of the war by the Melbourne Hospital Committee. Dr. Fetherston is Honorary Gynæcologist to the institution, and applied to be relieved of his duties temporarily, on the ground that his office of Director-General of Medical Services claims his whole energies.

Dr. F. C. F. Andrew has removed from St. George's Terrace, Perth, to 22 Collins Street, Melbourne.

Dr. Albert V. R. Hansen has relinquished his position ot Resident Medical Officer at the Royal Alexandra Hospital for Children, Sydney, for the purpose of taking up a hospital appointment in Melbourne

Dr. A. C. H. Salter, lately of Balmoral, has succeeded to the practice of Dr. J. T. Mitchell at Ballarat, Victoria.

Medical Appointments.

Dr. A. V. R. Hansen has been appointed House Surgeon at the Women's Hospital, Melbourne.

The following have been appointed Official Visitors to the Mental Hospital, Parkside:—

Dr. Edgar Jabez Brown.
Dr. Phœbe Chapple.
The Honourable Frederick William Coneybeer.
Leslie Horrocks Haslam, LL.B.
Lionel Laughton Hill, M.P., and
John Albert Southwood, M.P.

Dr. A. E. Finckh has been appointed Director of the Pathological Department of the Sydney Hospital during the absence of Dr. Jamieson,

Dr. P. T. S. Cherry has been appointed Acting Medical Officer, Port Adelaide Hospital, in place of the late Dr. Gething.

Dr. James Davie has been appointed Government Medical Officer at Jerilderie, New South Wales.

Dr. J. P. Chapman has been appointed Government Medical Officer at Manildra, New South Wales, in place of Dr. E. Neumann.

Dr. A. V. R. Hansen has been appointed House Surgeon to the Women's Hospital, Melbourne.

Proceedings of the Australasian Medical Boards.

NEW SOUTH WALES.

The following have been registered under the provisions of the "Medical Act of 1912" as duly qualified medical practitioners:—

Allen, Cecil Gordon, M.B., M.S., 1915, Univ. Sydney.
Hudson, Richard Hastings, M.B., M.S., 1915, Univ. Sydney.
Lowe, Gordon Bradley, M.B., M.S., 1915, Univ. Sydney.
McMaster, Robert Maxwell, M.B., M.S., 1915, Univ. Sydney.
Quessy, Pierre Antoine Leon, M.B., M.S., 1915, Univ. Sydney.
Sinclair, George Wade, M.B., 1915, Univ. Sydney.
Winn, Roy Coupland, M.B., M.S., 1915, Univ. Sydney.
Gearin, Clifford, M.B., M.S., 1915, Univ. Sydney.
Graham, Francis John, Lic. R. Coll. Phys., L.M., Irel., 1910; Lic. R. Coll. Surg., L.M., Irel., 1910.
Skeet, Jack Garland, M.R.C.S., Eng., 1913; L.R.C.P., L.M., Lond., 1913.
Pattison, Charles Richard Maitland, Lic. R. Coll. Surg., L.M., Irel; L.R.C.P., L.M., Irel., 1902.

For additional registration:—

Curtis-Elliott, Frederick Clissold, M.S., 1915, Univ. Sydney.

SOUTH AUSTRALIA.

The following has been registered under the provisions of the "Medical Act, 1880," as a duly qualified medical practitioner:—

Alexander Constantinovitch Platanow, M.B., B.S., Imperial Military Medical Academy, Petrograd, 1909.

Books Received.

THE INTERVERTEBRAL FORAMINA IN MAN: THE MORPHOLOGY OF THE INTERVERTEBRAL FORAMINA IN MAN, including a Description of Their Contents and Adjacent Parts, with Special Reference to the Nervous Structures, by Harold Swanberg, with an Introductory Note by Prof. Harris E. Santee, 1915. Chicago: Scientific Press Pub. Co.; Crown 8vo., pp. 95. Price, 7s. 6d.

PRACTICAL MEDICINE SERIES: EYE, EAR, NOSE AND THROAT, Edited by Casey A. Wood, C.M., M.D., D.C.L.; Albert H. Andrews, M.D.; William L. Ballenger, M.D., under the direct editorial charge of Charles L. Mix, A.M., M.D.; Vol. III., Series 1915. Chicago: Year Book Publishers; Demy 8vo., pp. 369. Price, 6s. 6d.

Diary for the Month.

Aug. 4.—Vic. Branch, B.M.A., Monthly.
Aug. 6.—Queensland Branch, B.M.A., Monthly.
Aug. 11.—Melb. Pædiatric Soc.
Aug. 12.—Annual General Meeting of the Australasian Medical Publishing Company, Limited, at Melbourne.
Aug. 12.—North Eastern Med. Assoc. (Tamworth), N.S.W.
Aug. 12.—Vic. Branch, B.M.A., Council.
Aug. 13.—N.S.W. Branch, B.M.A., Clinical Evening.
Aug. 13.—S. Aust. Branch, B.M.A., Council.
Aug. 17.—N.S.W. Branch, B.M.A., Executive and Finance Committee, Ethics Committee.
Aug. 18.—W. Aust. Branch, B.M.A., General.
Aug. 20.—Q. Branch, B.M.A., Council.
Aug. 24.—Vic. Branch, B.M.A., Eye and Ear Section.
Aug. 25.—Vic. Branch, B.M.A., Council.
Aug. 27.—N.S.W. Branch, B.M.A., Ordinary.
Aug. 27.—Melb. Hosp. Clin. Soc.
Aug. 31.—N.S.W. Branch, B.M.A., Organization and Science Committee, Medical Politics Committee.

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Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
QUEENSLAND. (Hon. Sec. B.M.A. Building, Adelaide Street, Brisbane).	Brisbane United F.S. Institute. F.S. Lodges at Longreach.
WESTERN AUSTRALIA. (Hon. Sec. 230 St. George's Terrace, Perth).	Swan District Medical Officer. All Contract Practice Appointments in W.A.
NEW SOUTH WALES. (Hon. Sec. 30-34 Elizabeth Street, Sydney).	Australian Natives Association. Balmain United F.S. Dispensary. Burwood District F.S. Institute. Canterbury United F.S. Dispensary. Goulburn F.S. Association. Leichhardt and Petersham Dispensary. M.U. Oddfellows Med. Inst., Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. Mullumbimby District Friendly Societies. N.S.W. Ambulance Association and Transport Brigade. N. Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Braidwood. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Mudgee. F.S. Lodges at Orange. F.S. Lodges at Parramatta, Penrith, and Auburn. F.S. Lodges at Wellington. Newcastle Collieries— Killingworth. Seaham Nos. 1 and 2. West Wallsend.
SOUTH AUSTRALIA. (Hon. Sec. 3 North Terrace, Adelaide).	The F.S. Medical Assoc. Incorp., Adelaide.

EDITORIAL NOTICES.

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